





THE AFTERGLOW

CREPUSCULE

THE PARIS EXHIBITION, 1900.

---

OFFICIAL  
HANDBOOK & CATALOGUE  
OF THE  
CEYLON COURT.

With Maps and Illustrations.

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COLOMBO :  
GEORGE J. A. SKEEN, GOVERNMENT PRINTER, CEYLON,

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1900.



MAP  
of the  
**ISLAND OF CEYLON**

Province Boundaries. ....+---+  
District .....+---+  
Railways completed .....+---+  
Sanctioned .....+---+



Scale of 38 Miles to an Inch.

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CEYLON  
IS REPRESENTED ON THE ROYAL COMMISSION  
AND ON THE  
COMMITTEE DELEGATED TO ADMINISTER THE  
INDIA AND CEYLON SECTION  
BY  
SIR CECIL CLEMENTI SMITH, G.C.M.G.  
SIR MONTAGU OMMANNEY, K.C.M.G.

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THE ADMINISTRATION OF THE CEYLON COURT  
(UNDER THE DIRECTION OF THE INDIA AND CEYLON  
COMMITTEE OF THE ROYAL COMMISSION)  
IS IN CHARGE OF  
MR. W. E. DAVIDSON, C.C.S., EXECUTIVE OFFICER OF THE  
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PLANTERS' ASSOCIATION.

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MR. R. V. WEBSTER IS ASSISTANT TO MR. RENTON, AND IS  
IN CHARGE OF THE CEYLON TEA KIOSQUE.

MR. J. HAYWARD IS IN CHARGE OF THE EXHIBITS IN THE  
CEYLON COURT.

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BY

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*Governor of Ceylon.*

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Mr. C. DRIEBERG.





DESIGN ON LID OF KANDYAN SILVER BOX (SUN AND MOON).

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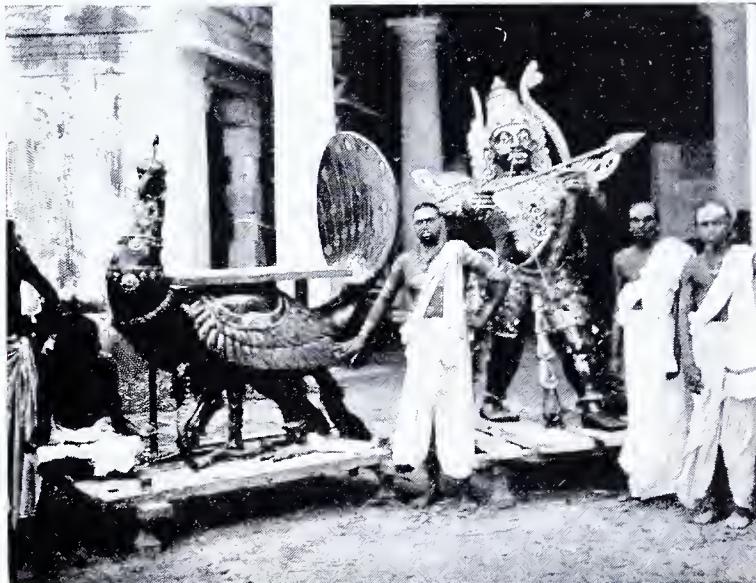
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THE HINDU GOD KANDASWAMY.



MEEANGALA GALLERY, KADUGANNAWA INCLINE,  
COLOMBO-KANDY RAILWAY.





Fenner & Sleath L<sup>m</sup>

Photo by W. L. H. Skeen & Co.

TALIPOT PALM IN FLOWER.

PALMIER EN FLEUR.

## PREFACE.

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HIS book is designed to afford visitors to the Paris Exhibition of 1900 information concerning the resources and industries of Ceylon, besides giving a Catalogue of the articles exhibited in the Court. With this object two Maps of Ceylon are inserted, as well as a short introductory account of the Island, dealing with its past history, and particularly with its progress during the present century while under the British rule.

Separate articles have also been prepared treating of the Administration and Government of Ceylon and of the Cultivation of Tea, the staple industry of the Island.

There then follows the Catalogue of Exhibits, under the Classification laid down by the Board of Direction of the Exhibition; and at the commencement of each section information of a general character is given as an introduction to the detailed list of exhibits.

Some of the articles exhibited are for sale at the close of the Exhibition. Where practicable, all such articles have labels attached to them stating their price, and these are quoted in this Catalogue; but in some instances, as for instance lace and tortoise-shell, it has been found inconvenient to label each article separately. In these cases reference is invited to the Court attendant, who has printed lists in his charge. Mr. HAYWARD, the officer in special charge of the Exhibits of Gems, is authorized to register the applications of those visitors who desire to have articles for sale retained for them at the close of the Exhibition.

W. E. DAVIDSON.

*Colombo, December, 1899.*



SENSATION ROCK, KADUGANNAWA INCLINE.  
COLOMBO-KANDY RAILWAY.



COLOMBO HARBOUR FROM THE LIGHTHOUSE.

## INTRODUCTION.

(WITH MAP OF CEYLON.)

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THE Island of Ceylon (known to the ancients in different ages as Serendib, Taprobane, Lanká) lies in N. Lat.  $5^{\circ} 53'$ - $9^{\circ} 51'$ ; E. Long.  $79^{\circ} 42'$ - $81^{\circ} 55'$  south-east of the southern extremity of Hindustan, from which it is separated by Palk Straits, a narrow channel only available for vessels of light draught.

The Portuguese were the first European settlers in Ceylon. From early in the 16th to the middle of the 17th century they held continuous though not undisputed possession, giving way at last to the Dutch, who from 1656 for 140 years continued to govern the Maritime Provinces of the Island, the Central or Kandyan Provinces remaining under their native rulers. In 1796 the last remaining stronghold of the Dutch at Colombo capitulated to the English, and the Island became part of the British possessions in the Eastern seas. It was not, however, until some years later (1815) that the King of Kanly was deposed, and the entire Island brought within the Crown Colony system of Government, of which it is now the largest and most completely organized representative.

The total area of the Island is about that of Holland and Belgium, or one-eighth the size of France, and contains some 25,365 square miles = 65,700 kilomètres carrés; the extreme length is 271 miles, or 436 kilomètres; the extreme breadth 137 miles, or 220 kilomètres. At the end of 1899 the population was approximately  $3\frac{1}{4}$  million. The proportion of Europeans to natives is less than 2 per 1,000.

The Veddahs are supposed to be a remnant of the aborigines of Ceylon. They have no fixed habitations, roaming about the forests of the North-Central and Eastern Provinces.

Living in caves and hollow trees, their dialect is different from that of the Sinhalese, with whom they have little intercourse.

The Maldivian Archipelago, a group of coral islets situated in the Indian Ocean and about 400 miles (644 kilomètres) from the nearest point of Ceylon, is a dependency of the Government of Ceylon, whither the Sultan of the Maldives sends an Embassy annually. These islands are difficult of access, and intercourse with them is very limited ; but they are prosperous, being covered with cocoanut palms. The population is about 30,000, a hardy breed of adventurous



NUWARA ELIYA FROM RAMBODA PASS.

traders and seamen. An interesting ethnological collection from these islands has been procured for this Exhibition.

For a tropical country Ceylon is decidedly healthy : from its insular position the climate contrasts favourably with that of India; there are no extremes of temperature, and throughout the low-country the thermometer varies little in the course of the year; the mean temperature at Colombo is nearly 81° F. or about 27° C. There is, however, considerable difference in the daily temperature in the hill districts. The coolest months are December and January ; the hottest, March, April, and May. The mean temperature of Nuwara Eliya, the sanitarium of the Island, is 58° F. or about 14.5° C. at an elevation of 6,200 ft. (2,000 mètres).

Sir E. Tennent, who resided in the Island for some years as Lieut.-Governor and Colonial Secretary, in his interesting and valuable work on the Colony writes :—

“There is no Island in the world, Great Britain itself not excepted, that has attracted the attention of authors in so many distant ages and so many different countries as Ceylon ; there is no nation in ancient or modern times possessed of a language or literature, the writers of which have not at some time made it their theme. Its aspect, its religion, its antiquities and productions, have been described as well by classic Greeks as by those of the lower empire, by the Romans, by the writers of China, Burmah, India, and Cashmere, by the geographers of Arabia and Persia, by the mediæval voyagers of Portugal and France, by the annalists of Portugal and Spain, by the merchants and adventurers of Holland, and by the travellers and topographers of Great Britain.”

Tennent’s own enthusiastic description of the Island is summed up thus :—

“Ceylon, from whatever direction it is approached, unfolds a scene of loveliness and grandeur unsurpassed, if it be rivalled, by any land in the universe. The traveller from Bengal, leaving behind the melancholy delta of the Ganges and the torrid coast of Coromandel, or the adventurer from Europe recently inured to the sands of Egypt and the scorched headlands of Arabia, is alike entranced by the vision of beauty which expands before him as the Island rises from the sea, its lofty mountains covered by luxuriant forests, and its shores, till they meet the ripple of the waves, bright with the foliage of perpetual spring.”

The speed and comfort with which a journey to Ceylon can now be accomplished by the magnificent vessels of the Peninsular and Oriental and Orient Lines, of the Messageries Maritimes, of the Norddeutscher Lloyd, and the British India and other important Steamship Companies, induces many, besides the merchant or planter, to visit this interesting Island. Those in search of tropical scenery and vegetation, the naturalist, the archæologist, or the sportsman, will all alike find ample field for enterprise, well repaying the two or three weeks spent on the outward voyage. The scenery and vegetation are rich in all that gladdens the eye ; while no country in the world can boast of a more varied and interesting insect life to occupy the naturalist. Elephant, leopard, wild buffalo, bear, wild boar, deer of many varieties, with snipe and wild fowl in profusion, will give occupation to the sportsman.

To the archæologist the many ruined cities, with their stone-carving and clear close-cut inscriptions, offer infinite variety. Among the most wonderful of these ruins are those of Polonnaruwa and Anurádhapura in the centre of the Island. The latter was the chosen capital of King Pandukabhaya, 437 B.C., and remained the capital of the Island for twelve centuries. Court chroniclers write that the outer wall of the city enclosed 250 square miles, and was completed in the first century of the Christian era.\* Nothing beyond the ruins, with their interesting records in stone, and the large dagobas now remain, except the sacred Bó-tree, which still flourishes. Major Forbes, in his work entitled "Eleven Years in Ceylon," states that in the reign of King Devanampiya Tissa, which commenced 307 B.C., Anurádhapura received the collar-



JANITOR STONE,  
ANURÁDHAPURA.

One of the Gautama Buddha, his begging dish filled with reliques, and a branch of the Bó-tree, under which he attained Buddhahood. Thus this relic of past ages has been flourishing for nearly 2,200 years, and is believed to be the oldest living tree of which there is any authentic record. It is held sacred throughout the Buddhist world, and is the goal of many a long pilgrimage. Even the fallen leaves are treasured by the pilgrims and carried to distant lands. Roughly speaking, three-fifths of the population of Ceylon are Buddhists.

Colombo, on the South-West coast, is the capital of the Island, with a population now estimated at 165,000. The South-West breakwater, completed in 1885 under the supervision of Sir J. Coode at a cost of £650,000 (with supplementary works now in course of completion at a cost of about one million sterling more), enables vessels of the largest size to lie in safety throughout the heaviest monsoon. On the completion of the dockyards it will have become a port of the first class, and from its unsurpassed geographical position is destined to become the distributing centre of the

\* The splendour of the city, its size, and its buildings excited the wonderment of the far-travelled Chinese pilgrim Fâ Hien, who wrote his travels in the fourth century of the Christian era.

commerce of the Eastern seas. Colombo is distant 2,500 miles from Aden, 600 from Madras, 900 from Bombay, 1,400 from Calcutta, 1,600 from Singapore, 3,000 from Hongkong, 3,000 from West Australia. Already it ranks as the tenth largest port in the world, if a computation is based on the total tonnage entering and clearing from the harbour.

Previous to the construction of the Colombo breakwater, Galle, on the South coast, was the port of call for mail steamers, but the natural harbour of the Island is Trincomalee on the N.E. coast. Trincomalee is a fortified naval station, and possesses an Admiralty dockyard ; it is easy of access in all weather, and has a magnificent and safe anchorage.



A FLIGHT OF STEPS AT ANURÁDHAPURA.

Turning now to the products of the Island, we find Ceylon in ancient days the far-famed land of pearls and precious stones. Much activity is still shown in the search for gems, and the value of the stones annually discovered is considerable. The mining for precious stones, as well as that for plumbago, is almost entirely in the hands of the natives.

Plumbago or graphite mines are largely worked, mainly in the West and South of the Island. The produce is chiefly exported to Great Britain and the United States, where it is utilized in the manufacture of crucibles, for lubricating purposes, castings, &c., and for making lead pencils. The amount of plumbago raised and exported in 1898 was 480,000 cwt. (2,436,000 kilos), of a value of Rs. 7,174,770, or nearly eleven and a half million francs. A Chamber of Mines was established in 1899.

The pearl fishery, though precarious and uncertain, is still in favourable years a valuable addition to the revenue. In the last successful fishery, held in 1891, 44,400,000 shells were fished, and the Government share realized £96,400. The same primitive system of gathering the oysters exists as in ancient times, and no system has been formulated for their artificial culture. When the Inspector reports a bed fit for fishing, the Government proclaims a fishery to commence on a certain date; by this date the arid and otherwise deserted coastland at Arippu, on the N.W. coast, is the scene of a bustling town, filled with people of varied races and occupations, including divers and boatmen from the Coromandel Coast and the Persian Gulf, pearl dealers from India, Malaya, and China, with the necessary accompaniment of merchants and traders of all classes. A limited number of boats and divers are licensed; every oyster is gathered by the hand of the diver, no dredger or implement of any kind being used. The Government take as royalty two-thirds of the oysters thus gathered, which are sold by public auction at the close of each day's fishing. The remaining one-third is assigned as remuneration to the divers and boatmen.

The manufacture of salt still remains a Government monopoly, and produces a profit of a million rupees (1,600,000 francs) per annum, the salt being sold by Government at Rs. 2·36 (nearly 4 francs) per cwt. (50 kilos). The monopoly is, *prima facie*, open to the obvious objections which attach to all taxes on necessities of life; and if the circumstances of the country were such as to make it possible for the Government to dispense with the revenue derived from the monopoly, these objections would have much weight. But the relation between the general revenue and the requirements of the Island is such that it would be difficult to abandon the revenue derived from salt without at the same time abandoning the execution of public works of material importance, including the extension and the efficient maintenance of means of communication. The significance of such a step to the native population may be realized from the fact that until a comparatively recent date there were districts in the Island where the cost of transport added as much as 200 per cent. to the price charged by Government for salt on the seaboard.

Gold, silver, ivory, and tortoiseshell work are also among the important native industries, together with pottery, mats, fans, and wood-carving. The beautiful woods indigenous to the Island give great scope to the ingenious native carvers and cabinet-makers; among the most valuable are

ebony, satinwood, calamander, jak, nedun, palu, ironwood, halmilla, &c. The exhibits of these several industries will repay careful inspection.

The seas surrounding the shores abound in fish, and the coast line, especially in the Southern, Western, and Northern Provinces, is thickly populated, and has the appearance of an endless village, the inhabitants of which are thriving, and whose wants are satisfied by a few hours' fishing with the most primitive appliances.

The Sinhalese, however, are mainly an agricultural race, and the vast majority are engaged in tilling the soil. The stupendous\* works commenced 500 B.C., and continued by successive kings of Ceylon in construction of innumerable reservoirs or tanks for storing the rainfall for irrigation purposes, testify to the great importance attached to agriculture in ancient times.

The Legislature has for some years voted considerable sums annually from the general revenue for the repair, maintenance, and improvement of these tanks, to the immense advantage of the rural population.

The Sinhalese cultivation is now chiefly confined to the production of their staple articles of food, rice and dry grains and cocoanuts, with gardens of areca palms, cardamoms, cinnamon, coffee, vegetables, and fruits.†

In the Northern Province of Jaffna the natives are of Tamil origin, descended from the Dravidian races of Southern India, who from time to time invaded and colonized the North and East of Ceylon; they cultivate largely tobacco, dry grain, breadfruit, the palmirah palm, vegetables, and tropical fruits of all kinds. They are an intelligent, industrious, and enterprising race.

The great agricultural industry, however, which has mainly stimulated the progress and achieved the prosperity of Ceylon, thus enabling the Government to undertake the construction of railways and intersect the Island with splendid roads and bridges, was in former years the cultivation of coffee, and now is that of tea. The great enterprise shown in the establishment of the TEA INDUSTRY, when the ruin of the Island was threatened by the failure of the coffee plant through disease, is sketched more fully in a special article (*vide* page 37). Suffice it here to say that through their indomitable perseverance, industry,

\* The tank of Kalawewa, which has lately been restored, submerged an area of over 40 miles in circumference. The retaining "bund," or earthwork, is more than 12 miles in length, with a thickness of over 300 ft. at its base. It irrigates about 50,000 acres (20,000 hectares).

† Fruits include plantains, pineapples, custard apples, mangoes, oranges, limes, melons, breadfruit, &c.

and patience, the European planters have now established in the cultivation of tea an enterprise as great and as flourishing as was ever known in the bygone days of King Coffee. The home of these great industries lies in the mountains in the centre of Ceylon, which occupy one-fifth of its total area. The highest peak is Mount Pedro (8,296 ft., or 2,529 mètres); but the most interesting and best known is Adam's Peak (7,352 ft., or 2,241 mètres). The majority of the plantations lie at an elevation of between 2,000 ft. and 5,000 ft.; here the climate is well nigh perfection, and the luxury of the planter's bungalow, with its European comforts, surrounded by roses and geraniums, with English fruits and vegetables, can be most justly appreciated after the heat of a journey from Colombo to the hill stations.

The coffee plant was not, as cinnamon is, indigenous to Ceylon; but there were formerly few native hamlets in the Kandyan country that had not scattered coffee bushes around their doors. It was not, however, till about 1830 that European enterprise was first directed to the cultivation of coffee in the Island, since which date it continued with varying success till 1874-75, when the export of coffee reached nearly 1,000,000 cwt., representing at the then ruling price a value of nearly £5,000,000 sterling. These vast returns on capital drove forest land up to an extravagant price, and Crown lands at an upset price of £1 an acre occasionally sold by public auction at from £20 to £24 an acre. This great prosperity, however, did not continue unchecked. In 1878-79 the effects of the fungus (*Hemileia vastatrix*) known as "leaf disease" had so seriously diminished the crops that planters began to turn their attention to other plants adapted to the climate and soil: cinchona and tea have both been successfully cultivated, but it is mainly to the latter that the planters now look with confidence to maintain the re-established prosperity of the Island.

The extent of tea now in cultivation is about 380,000 acres (above 150,000 hectares). The value of the crop exceeds £3,000,000; and the export has already risen from 2,105 lb. in 1877 to 119,000,000 lb. in 1898, or above 54,000,000 kilos. The prospects both in crop and flavour have been so successful that the plantations of coffee have been rooted up to make way for tea, and large areas of new land have been brought under cultivation.

No country can boast of a better or cheaper labour supply, but it is chiefly imported from India. The Sinhalese peasants are excellent domestic servants, and are good at

felling trees and clearing jungles, irrigation, and other works enforced under the Village Communities' Ordinance, but very few will undertake the routine work of the hill plantation labour. Ceylon has therefore become the favourite resort of emigrants from the Malabar and Coromandel Coasts, who flock over in thousands and settle on the estates; there are no unnecessary restrictions, and the coming and going of these labourers is made as free and as easy as possible. Public "resthouses" and

hospitals are provided by Government at easy distances along the Central road running from Kandy to Mannar, by which most of the emigrants used to find their way to the plantations. But of late years a special daily sea service has been organized, by which the coolies are brought from Tuticorin, the port of embarkation in Southern India, direct to Colombo. In most years as many as 100,000 cooly labourers migrate to Ceylon, returning to their native villages to invest their savings. There are some 350,000 Tamil coolies now resident on tea estates employed at a daily wage of 37 cents of a rupee, or 60 centimes. They are under no indentures, and are free to quit any employment on giving one month's notice.

In addition to coffee, cinchona, and tea, cacao is becoming an important item on many plantations, and is of excellent quality; indiarubber, tapioca, vanilla, and other tropical products are also successfully grown on many properties.

The large cultivation of cinnamon and cocoanut palm is chiefly in the hands of natives; both thrive best in the low-country near the sea. For many years the export of cinnamon was a Government monopoly, but now there are no restrictions on its growth or export; the amount of the cinnamon exported in 1898 exceeded 3,200,000 lb., or 1,500,000 kilos, of a value of two million francs.

The cultivation of the cocoanut palm, with its multifarious uses, is the most important in the life of the low-country Sinhalese. The spirit he drinks is distilled from the sap: the kernel of the nut is a necessary element in his daily



TAMIL BARBER.

curry ; the "milk" of the nut the beverage offered to every visitor ; his only lamp is fed from the oil ; the nets for fishing are manufactured from the fibre, as is also the rope which keeps his goat or cow from straying ; while the rafters of his house, the thatch of the roof, and the window blinds are made from its leaf and wood. The extent and value of the cultivation of this palm may be gathered from the fact that there are 700,000 acres (280,000 hectares) under cultivation—nearly one-fourth of the estimated area in the world—and that while, as already stated, its many products are a universal necessity in the daily life of the Island population of above 3,500,000, the export of oil, copra, desiccated cocoanut, poonac, and fibre amounts to more than £1,000,000 annually, and the revenue derived from the excise duty levied on the spirit (arrack) distilled from the sap realizes about £166,000.

The following figures\* show the latest Official Returns of the Finances and Trade of the Colony :—

	1898.	Rs.
Revenue ...	...	25,138,669
Expenditure ...	...	22,845,520
Imports, Goods ...	...	87,525,035
,, Specie ...	...	10,368,024
Exports, Goods ...	...	84,076,820
,, Specie ...	...	1,295,802

In the statistical summary (printed separately for gratuitous circulation), showing the financial and industrial position of the Colony, appears a table showing the nature, the extent, and the value of the direct trade with France ; but the volume of this direct trade is capable of very great development. At present Ceylon imports direct from France — Marseilles being practically the only port in direct communication—goods to the value of 600,000 francs yearly, mainly potatoes, brandy, wines, and cement. The exports to France are worth a million and a half of francs; three-fourths of this is represented by copra, and the balance in equal shares by cinnamon, tea, and cocoanut oil.

It is extraordinary that the direct trade of France with Ceylon should remain so small and bear so minute a proportion to the total volume of Ceylon trade, considering how many articles of food and raw material can be supplied from Ceylon to French consumers and manufacturers, and considering that France is supreme in the production of so many manufactured articles the use of which might be greatly developed in Ceylon.

\* The rupee equals 1 franc 60 centimes ; exchange is now stationary at the equivalent of 15 rupees to the pound sterling.

A great Exhibition at Paris is looked upon as a point of departure in the development of many discoveries, both in trades and manufactures. It is hoped that France will discover Ceylon, and realize that a market—in a small but prosperous country directly in the line of Eastern trade—lies awaiting development by French merchants, and that Ceylon can give in exchange its oils and palm products, used in many trades; its cacao, for chocolate; its spices, cinnamon, and citronella; its graphite, the finest lubricant known, and very largely used for crucibles; its gems and pearls; its delicate cabinet woods and art work; and, above all, the most fragrant and refreshing drink in the world, pure Ceylon Tea.



KANDY LAKE, SHOWING LIBRARY AND OCTAGON.



COLOMBO HARBOUR FROM THE CATHEDRAL.

## NOTES ON THE ADMINISTRATION AND GOVERNMENT OF CEYLON.

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CEYLON is an Island about one-eighth of the size of France, and lies in the Indian Ocean off the southern point of Hindustan, or British India. Its population, of about  $3\frac{1}{2}$  million, consists mainly of Sinhalese, a race which according to their historical records derives its origin by colonisation from Northern India, *circa* 543 B.C. Besides the  $2\frac{1}{4}$  million of Sinhalese, there are about one million of Tamils, a Dravidian race of the South of India who have colonised the Northern Province of the Island. The remainder of the population are of various races, the proportion of Europeans, including the Military Garrison, being about 7,000 persons.

Portions of Ceylon were occupied by the Portuguese from 1518 to 1658, when the Dutch ousted the Portuguese from their fortresses, being in their turn dispossessed by the British forces in 1796. The Kandyan kingdom, which had remained independent and had the control of the centre of the Island, was reduced in 1815. Since that date, except for a rebellion in 1817–18, and an abortive rising in 1848, the country has had the benefit of profound peace.

The Administration is on the model which is known as the system of *Crown Colonies*, adopted by the British Government in dealing with territories in which the bulk of the population is not yet fit to be entrusted with representative Government; the tendency however of the Government being towards the elevating of the population by means of education and Municipal and local self-government towards the period when the people may be granted a direct voice

in the internal administration. This system of Crown Colonies, as finally evolved by experience, may be pronounced generally, and especially in the case of Ceylon, to be eminently adapted for the purpose of administering a dependency during the transitional period between its first subjugation and the time when the inhabitants may safely be entrusted with the management of their internal affairs. It secures above all things law and order.

### **Constitution.**

The ultimate source of authority, subject to the will of the Crown and of the Houses of Parliament, rests with the Secretary of State for the Colonies. But the widest discretion is accorded to the Governor, who is nominated by the British Government and who holds office for a term of six years : this distinguished post, very similar in powers to those of a Roman Pro-Consul in the Provinces, is generally bestowed on an experienced administrator not previously connected with the Colony.

The power of making laws is vested in a Legislative Council over which the Governor presides ; but the Crown possesses supreme legislative powers, in that the Secretary of State requires that all intended legislation shall first of all receive his approval, and the laws—Ordinances as they are termed—must receive the approval of the Crown. The Crown moreover possesses independent legislative powers, promulgated in orders issued from the Privy Council : this power however is now held in abeyance.

The Governor is aided by an Executive Council of five officials, consisting of the Lieutenant-Governor and Colonial Secretary, always an officer of wide colonial experience, but not usually belonging to the Civil Service of Ceylon ; a general officer of the Army commanding the Forces under the supreme command of the Governor ; the Auditor-General, generally appointed from another Colony ; the Attorney-General, a professional lawyer ; and the Treasurer, who is usually the senior member of the Ceylon Civil Service. The Governor, who presides over this Council, being himself personally responsible to the Home Government, can consult, but is not bound to follow the advice of the Executive Councillors ; but in such cases, when the Governor overrules the advice of this Council the question at issue is referred to the Secretary of State.

The Legislative Council consists of eighteen members, including the Governor who presides. The five Executive Councillors are *ipso facto* members of the Legislative

Council, the number of which is completed by the addition of four members of the civil administration and of eight unofficial members. The unofficial members are appointed by the Governor and hold office, without emolument, for a term of five years, which may however be renewed at the will of the Governor. These unofficial members are appointed to represent the following interests: (1) the European; (2) the Burgher; (3) the Maritime Sinhalese; (4) the Tamil; (5) the Kandyan Sinhalese; (6) the Mohammedan; (7) the Merchants; and (8) the Planters. The Governor presides and has a casting vote and the ultimate power of veto; moreover, he can command the votes of all official members except on points where religious principles are affected. Unofficial members may, by permission, introduce drafts of Ordinances which do not involve the grant of money. All Ordinances passed in the Legislative Council after receiving the formal assent of the Governor are sent to the Secretary of State for the final approval of the Crown, but only in rare cases is the operation of a law suspended pending such approval, it being understood that the Ordinance when drafted had been accepted in principle by the Secretary of State responsible to the Crown and Parliament. No Government funds can be expended without the sanction of the Legislative Council. All votes are annually recurrent, except as regards the cost of the Permanent Establishment, the payment of the Public Debt, the contribution to the cost of Military Defence, and the allocation of a fixed sum to be expended annually on Irrigation.

It will be gathered that the power of making laws and of voting money is possessed by a body on which the Government is supreme; but, on the other hand, the deliberations of the assembly are conducted with open doors; all action is carefully thought out beforehand by the Supreme Government both in Ceylon and England, and is moreover usually submitted in advance to the Provincial and District Revenue Officers, who correspond in their functions to Préfets and Sous-Préfets; and the proceedings of the Council are ventilated and freely criticised by a highly intelligent local Press, which has always been remarkable for its moderation and sagacity. There is no desire for an enlargement of the popular representation in so far as it could be based on popular vote. It is generally felt that the season is not ripe for entrusting larger powers to a people who as yet are not educated up to the discreet exercise of a franchise. On the other hand, the leaders of the various sections of the community exercise considerable indirect influence; and the views expressed by the combinations representing the special

interests of the Planters and the Merchants—known as the Planters' Association of Ceylon and the Ceylon Chamber of Commerce respectively—carry great weight with the Administration.

Local self-government has been introduced in the form of Municipal Councils in the three chief towns of Colombo, Kandy, and Galle, based on a liberal franchise which grants a vote to the ratepayer who possesses a house of an annual value of Rs. 180, say £12 or 300 francs, or who as tenant pays a monthly rental of Rs. 15, or 25 francs, as well as to graduates of a University. Each Council is presided over by a member of the Civil Service and contains a number of members nominated by the Government, but the elected members form an absolute majority. These Councils are characterised by prudence and moderation in the exercise of their powers, and display considerable public spirit; but the franchise is as a rule exercised mainly by the educated leaders of the wards (*arrondisements*), the illiterate native voter rarely caring to exercise his rights.

Similarly, the internal administration of fourteen smaller towns is entrusted to Local Boards, on which however the elected members do not possess a majority. The maintenance and control of the roads, other than the main thoroughfares, are entrusted to Provincial and District Road Committees presided over by the Civil Servant in administrative charge of the Province or District. Finally, certain powers as regards means of communication between the villages and the working of irrigation rules are granted to Gansabhwas or Village Councils. But, with the exception of a few of the larger of the towns, little interest is taken in the exercise of these powers, which are left generally to the discretion of the presiding officer of Government. The franchise rights are rarely exercised.

### **The Civil Service.**

The backbone of the Administration is, however, the Civil Service, which consists of about eighty members selected by open competition at a literary examination held in England, the age of admission being between twenty-one and twenty-four years. This system of selection works well, inasmuch as the successful competitors are men who have as a rule taken degrees at one or other of the great Universities, and who are possessed of training and talents which soon befit them for positions of trust and responsibility. All the higher posts in the Administration and the Judicial Service are reserved for members of the Civil Service, except some of the posts in the Executive Council and the Supreme Court.

### **Provincial Administration.**

For purposes of internal administration the Island is divided into nine Provinces, each controlled by a Government Agent with powers akin to those of a Préfet ; and these Provinces are subdivided into twenty districts, nine under the direct control of the Government Agents, and eleven administered by Assistant Government Agents, all the Government Agents and Assistant Government Agents being members of the Civil Service. These districts are again subdivided into smaller revenue divisions in charge of native



GROUP OF KANDYAN CHIEFS.

headmen, the chief of whom are generally selected from the number of those who are distinguished by ancestry, wealth, and special talent and trustworthiness. The cramping effect of undue centralization and bureaucratic influences is recognised, and considerable latitude is allowed to the Provincial, District, and divisional officers.

### **Judicial Administration.**

The judiciary is divided into (1) the Supreme Court, a bench of three Judges appointed by the Secretary of State either from the English, Scotch, or Irish Bar, or from among successful Judges in other Colonies or from the leaders of the Ceylon Bar ; (2) District Courts ; and (3) Police Courts.

On the criminal side, Police Magistrates (of whom there are twenty-five) can pass sentences up to six months' imprisonment and fines of Rs. 100, or 150 francs; District Judges (of whom there are nineteen) up to two years' imprisonment and fines of Rs. 1,000. The Supreme Court itinerates and holds assizes at fixed times and places to try, with the assistance of a jury, criminal offences of the highest magnitude : it has powers to inflict any punishment which is permitted by the law, including capital punishment.

On the civil side, Magistrates can try suits in which the matter at issue does not exceed Rs. 300, or 450 francs. District Judges have unlimited civil jurisdiction. The Supreme Court has, in civil matters, only appellate powers, appeals being taken from the decisions of District Judges and Magistrates. The right of appeal from the decisions of the Supreme Court lies in certain cases to Her Majesty the Queen in Her Privy Council.

Certain original jurisdiction up to the value of Rs. 20 in civil matters and fourteen days' imprisonment in criminal matters is vested in Village Tribunals, in which the President sits with assessors. Appeal from his decision lies to the revenue officer (the Government Agent or Assistant Government Agent), and again from his decision to the Governor in Executive Council.

From this resumé the deduction will be drawn that most ample provision is made to render the administration of justice readily accessible to all. This possesses the one serious drawback, that facility to resort to court encourages the litigious character of the people ; but, on the other hand, it is recognised as the first principle of the administration of British dependencies that all persons can obtain redress, and that all persons, whatever their position, race, or caste, are equal in the eyes of the law.

Again, no distinction is made in the race or caste of the presiding judge. It happens that at the time of writing nineteen of the Magistrates and three of the District Judges are natives of Ceylon ; and in previous years gentlemen born in Ceylon have attained the high distinction of a seat on the Supreme Court Bench. There is no distinction or privilege, whether of caste or race, accorded in any of the Judicial Courts of Ceylon to suitors ; and it often happens that the courts in the districts of the Island where European interests predominate are presided over by native-born judges.

### **System of Law.**

The basis of the law is the Roman-Dutch system which was taken over at the capitulation of the Dutch Government

in 1796. It is however much modified by the introduction of the English law on commercial matters and by Colonial ordinances. The Criminal law has been codified on the model of the Indian Penal Code, and the codification of the law of criminal and civil procedure respectively has also been completed.

### The Population.

The population for which the administrative machinery is described in the foregoing epitome, consists at the commencement of 1900 of 3,555,000 persons, ranging in density of population from 532 per square mile in the Western Province to 19 in the North-Central Province. The average density is 119 to the square mile. A square mile represents 2·6 kilomètres carrés.

The races of which this total is composed are :—

Sinhalese	...	...	...	...	...	...	2,230,000
Tamils	...	...	...	...	...	...	1,064,000
Moormen*	...	...	...	...	...	...	209,000
Malays	...	...	...	...	...	...	12,000
Javanese, Kaffirs or Negroes, Afghans, Arabs, Parsees, &c.	...	...	...	...	...	...	9,300
Veddahs	...	...	...	...	...	...	1,000
Burghers†	...	...	...	...	...	...	24,700
Europeans	...	...	...	...	...	...	7,000

The proportion of Europeans to native races is about as 2 is to 1,000.

The constituents of the European population, wives and children included, comprise :—

Military	...	...	...	...	...	...	1,724
Planters	...	...	...	...	...	...	3,500
The Colonial Service (Civil Service proper 80)							500
Merchants and their employés, clergymen, physicians, storekeepers, &c.	...	...	...	...	...	...	1,276

The small number of civil functionaries of European birth is noticeable, it being noted that the total includes all classes of the Public Service : *e.g.*, engineers, surveyors, police, railway servants, &c. The English tradition of allowing the greatest personal liberty compatible with the

\* The term "Moor" as applied to the Mohammedans is a relic of the rule of the Portuguese, who gave the Ceylon Mohammedans the name of their co-religionists of Morocco. In Ceylon the term means Mohammedans (other than Malays) born in Ceylon or Southern India and speaking Tamil as their mother tongue, and mostly of Tamil descent.

† The term "Burgher" covers all European descendants of mixed parentage. It is a Dutch term, which survives from the period of the occupation of the maritime portions of Ceylon by Holland.

maintenance of public order is followed in all British dependencies, and tends not only to popularize the existing institutions among all unofficial classes, but to attract to their shores merchants and planters of all nations who appreciate the absence of restrictions in the conduct of their business and private affairs.

### **Military Forces.**

The military garrison in 1891 consisted of 1,250 Europeans and 214 of the native Artillery, besides a corps of local Volunteers numbering 1,300 (1,000 infantry, 150 artillery, and 150 mounted infantry, the last being recruited from among the European Planters). The garrison artillery, both European and native, has since 1891 been considerably increased and the defence of the ports has been placed on a sound footing. An annual contribution is paid to the Imperial Government for the cost of the European garrison, the full strength being now fixed at 1,663 men. This contribution is fixed at  $9\frac{1}{2}$  per cent. of the general revenue (excluding land sales and railway charges), but it is never to exceed three-fourths of the cost of the garrison. The colonial contribution in 1893 was Rs. 1,763,066 (equalling 2,820,905 francs).

For any internal disturbances—such as religious or rice riots—the force of police, some 1,600 all told, including a few European police, is sufficient. The geographical position of Ceylon and the loyal and peaceable nature of its inhabitants enable the Imperial Government to draw on its garrison for military purposes elsewhere. For instance, parts of the garrison have been despatched when occasion required to India (at the time of the Mutiny), China, New Zealand, Egypt, and South Africa.

There is no conscription, nor is there any trained local Militia; the Sinhalese and Tamils have no military instincts; but there exists in the Malay population the material out of which several excellent regiments of infantry could be raised at short notice.

### **Finance.**

The revenue of Ceylon for the year 1898 exceeded 25 million rupees; the expenditure was less than 23 million. The Colony receives no pecuniary aid from the mother-country, nor does it furnish any direct tribute to the Imperial Treasury. The only fiscal agreement is regarding the Military Defence, the Colony contributing a sum not exceeding three-fourths of the cost of the garrison and constructing the earthworks and barracks, the Imperial Government defraying the cost of armament.

*Customs.*

The principal source from which the revenue is raised is from the Customs House, and is mainly derived from a tariff at 6½ per cent. *ad valorem* on imports. The returns from Customs in 1898 amounted to Rs. 6,714,626. There are no differential rates or bounties; all goods, from whatever countries, are subject to the same duty. At the Customs House are also collected the Port and Harbour dues aggregating to one million rupees; a levy of 10 cents of a rupee (16 centimes) per cwt., or 45 kilos, on exports of tea, coffee, and cacao, to raise a fund for providing medical aid to immigrant estate coolies—this fund amounts to Rs. 115,000; and a further cess levied at the request of the Ceylon Planters' Association on tea, to form a fund which is expended in furthering the interests and developing the markets for Ceylon tea. This last arrangement, yielding a fund of Rs. 240,000 yearly, by which a body of producers unanimously apply to have a tax levied for their own benefit on their own produce, is of so exceptional a nature as to deserve special comment, showing as it does how intimate are the relations between the Administration and the body of the Planters, as well as illustrating the cohesion and farsightedness shown by those who lead public opinion among the European Planters.

The only export duties are a royalty of Rs. 200 on every elephant exported, Rs. 5 per ton on plumbago, and Re. 1·25 per gallon on arrack, and a levy on export of deer horns of Rs. 14 per hundredweight.

The total revenue raised in the Customs House in 1898 was above eight million rupees; and the cost of collection was as low as 1·5 per cent. upon the total collections.

The total value in 1898 of Imports, including specie, was 98 million rupees; and of Exports, including specie, 85½ million rupees. The value in sterling of the principal Imports was:—

Articles of food and drink (three-fourths being rice from India) ...	£	3,144,283
Metal manufactured (chiefly silver bullion) ...	916,540	
Metal, raw material (chiefly coal from Cardiff) ...	626,956	
Yarns (mainly piece goods from Manchester) ...	460,827	
Machinery and mill work ...	267,865	
Apparel and articles of personal use ...	170,382	
Oils (chiefly kerosine from Russia) ...	97,730	
Other articles of lesser value ...	887,228	
 <b>Total Imports</b>	 <hr/>	 <hr/>
	... £6,500,801	

The value of the principal *Exports* was :—

	£
Tea (mainly to London and Australia) ... ...	3,169,853
Products of the cocoanut palm* ... ...	1,127,000
Coal sold to steamers in port ... ...	645,805
Plumbago (for New York, London, and Hamburg)	476,450
Cinnamon (for London, Antwerp, and Spain) ...	162,049
Cacao (mainly for London) ... ...	111,320
Specie (savings, mainly, of coolies) ... ...	86,049
Citronella oil (for New York, London, and continental ports) ... ... ...	78,108
Arecanuts (mainly to Western ports of India) ...	77,087
Tobacco (mainly to South India) ... ...	71,379
Cardamoms (mainly to South India) ... ...	64,877
Coffee (for London, Trieste, and Antwerp) ...	58,350
Other articles of lesser value ... ...	186,753
 Total Exports ...	<u>£6,315,080</u>

#### *Other Sources of Revenue.*

Apart from the income accruing from the Customs duties, the revenue is principally derived from the proceeds of sales of Crown lands, licenses (chief among which is the arrack monopoly), salt (another Government monopoly), stamp duties (revenue and judicial), and receipts from the Railways (which are Government property). The sale of Crown land varies according to the demand for expansion in the area which Planters—European and Native—desire to bring under cultivation with some particular product. The sales may be said to average yearly a return of Rs. 700,000, but the sale of land for tea has been somewhat checked by a fear of over-production. The monopoly in the manufacture and sale of arrack (the spirit distilled from the cocoanut palm) is lucrative, yielding an average of  $2\frac{1}{2}$  million rupees; it is mainly derived from the sale of the privilege to retail the spirit at a fixed number of taverns at the rate of Rs. 3·32 per gallon; the number of taverns is under 1,000, and the quantity of arrack consumed about 1,000,000 gallons. The revenue derived from the manufacture of salt at the Government salt pans is about one million rupees per annum. The cost price to the Government is 40 cents per cwt., and the sale price is Rs. 2·36, about 25 centimes per kilo. The stamp duties now yield about  $1\frac{1}{2}$  million rupees. The Government Railways (360 miles open) yield a gross return of some seven million rupees, the working expenses amounting to about 48 per cent.

\* Consisting of cocoanut oil, copra, desiccated cocoanuts, coir (yarn, rope, and fibre), poonac, cocoanuts, and arrack.

*: Expenditure.*

The principal items on the expenditure side are in round numbers as follows :—

	Rs.
Charges on account of Public Debt ... ...	3,000,000
Pensions ... ... ...	1,000,000
Headquarters Administration ... ...	500,000
Provincial Administration ... ...	1,100,000
Judicial Administration ... ...	800,000
Customs and Port Charges ... ...	400,000
Police ... ... ...	650,000
Prisons ... ... ...	450,000
Medical Department and Hospitals ... ...	1,350,000
Education ... ... ...	700,000
Postal and Telegraph Department ... ...	900,000
Railway Department ... ...	3,300,000
Public Works ... ...	3,000,000
Survey Department ... ...	450,000
Forest Department ... ...	450,000
Military Expenditure ... ...	1,700,000
Loss by Exchange with England ...	750,000

**Public Debt.**

The Public Debt is equal to 56 million rupees, raised in England at 4 and 3 per cent. for the construction of Railways and of the Colombo Harbour. Further loans at 3 per cent. are in contemplation, but the total indebtedness will not exceed four years' revenue. The public credit of Ceylon is equal to that of any other Colony, and its Three per Cents are now quoted in the London Stock Exchange at 103.

**Local Taxation.**

The local revenues raised by the Municipalities of Colombo, Kandy, and Galle, and by the Local Boards of Health and Improvement established in fourteen smaller towns, amount to  $2\frac{1}{2}$  million rupees. The local debts are Rs. 650,000. The towns are lightly taxed in local rates, the direct assessment tax in Colombo for the provision of light, water, and police being 11 per cent. on annual values; but the revenue at the disposal of these Municipalities is inadequate to their requirements, mainly owing to the exemption of Government property from payment of taxes. There is no octroi and no internal dues except tolls on certain principal roads.

A direct tax is also levied locally by the District Road Committees for the maintenance of all thoroughfares and resthouses at the rate of Re. 1.50 or Re. 1 in rural districts, and Rs. 2 in towns, payable by every able-bodied male (excluding only the Military, the priesthood, and the immigrant Tamil coolies) between the ages of 18 and 55 years, in lieu of the contribution of six days' labour on the

roads. This is the only direct taxation levied on the inhabitants of rural districts. The tax yields about  $1\frac{1}{4}$  million rupees.

### Currency.

The coinage rests on a silver basis, the unit of exchange being the rupee. The subsidiary currency consists of decimal fractions of the rupee, the copper or bronze subsidiary coinage including a five-cent piece, cents, half-cents, and quarter-cents. This coinage has now superseded the old Dutch coins—fanams, pice, challies, &c.—as well as English pence and their parts. The silver half-rupee is styled 50 cents, the quarter 25 cents, and a subsidiary silver coin is issued of a face value of 10 cents. The exchange value of the rupee, at one time as high as two shillings, has after some years of violent fluctuation remained stationary at the equivalent of 16 pence, or 1·6 franc. Gold coins are sold by the banks at about current rates of exchange. The note issue in Ceylon has been, since 1st January, 1886, a Government issue, and paper money to an average value of 10 million rupees is in circulation, the note of lowest value representing five rupees.

There are in the Island agencies of the Mercantile Bank of India, the Bank of Madras, the Chartered Bank of India, Australia, and China, the National Bank of India, and the Hongkong and Shanghai Banking Corporation. Until 1879 there was also a branch of the Comptoir d'Escompte de Paris. The clearing-house returns for Colombo show about Rs. 80,000,000 of cheques per annum. Besides these banking institutions and some agencies of Loan Companies, there are the Government Savings Bank (with deposits equal to about Rs. 1,750,000 lodged by over 13,000 depositors) and the Loan Board, organized for the investment of the Government balances, each of which lends money on good house security at comparatively moderate interest. The Post Office has also an organized Savings Bank, worked successfully by that Department. The officially recognized rate of interest in the Courts of Law is nine per cent.

### Education.

For half a century after the British occupation in 1796 the Government control of public education was restricted to the establishment of a few English schools in the principal towns and to the maintenance of such Vernacular schools as had existed under the Dutch Administration.

The expenditure from public revenues was some £2,000 a year, and the control was vested in a mixed body of the clergy and civilians : such efforts as missionary bodies were

even then making for the instruction of the people were left unrecognized. It was only in 1869 that the Government organized a separate Department of Public Education, with an officer at its head styled the Director, responsible only to the Governor. Since this new departure the progress of education has been steady and rapid. In 1869 there existed 64 departmental schools and 21 aided schools established by missionary effort, with a total attendance of 6,897 pupils. In 1898 the departmental schools numbered 479, with an attendance of 46,279; the aided schools numbered 1,220, with an attendance of 103,951; and in 2,330 unaided schools there was an attendance of 34,805 children. Thus the total number of children under some course of education in 1898 reached 185,035, or between 6 and 7 per cent. of the population. The expenditure at the same time rose from Rs. 161,660 in 1868 to Rs. 738,122 in 1898, the cost per head being under Rs. 4, or 6 francs, per annum.

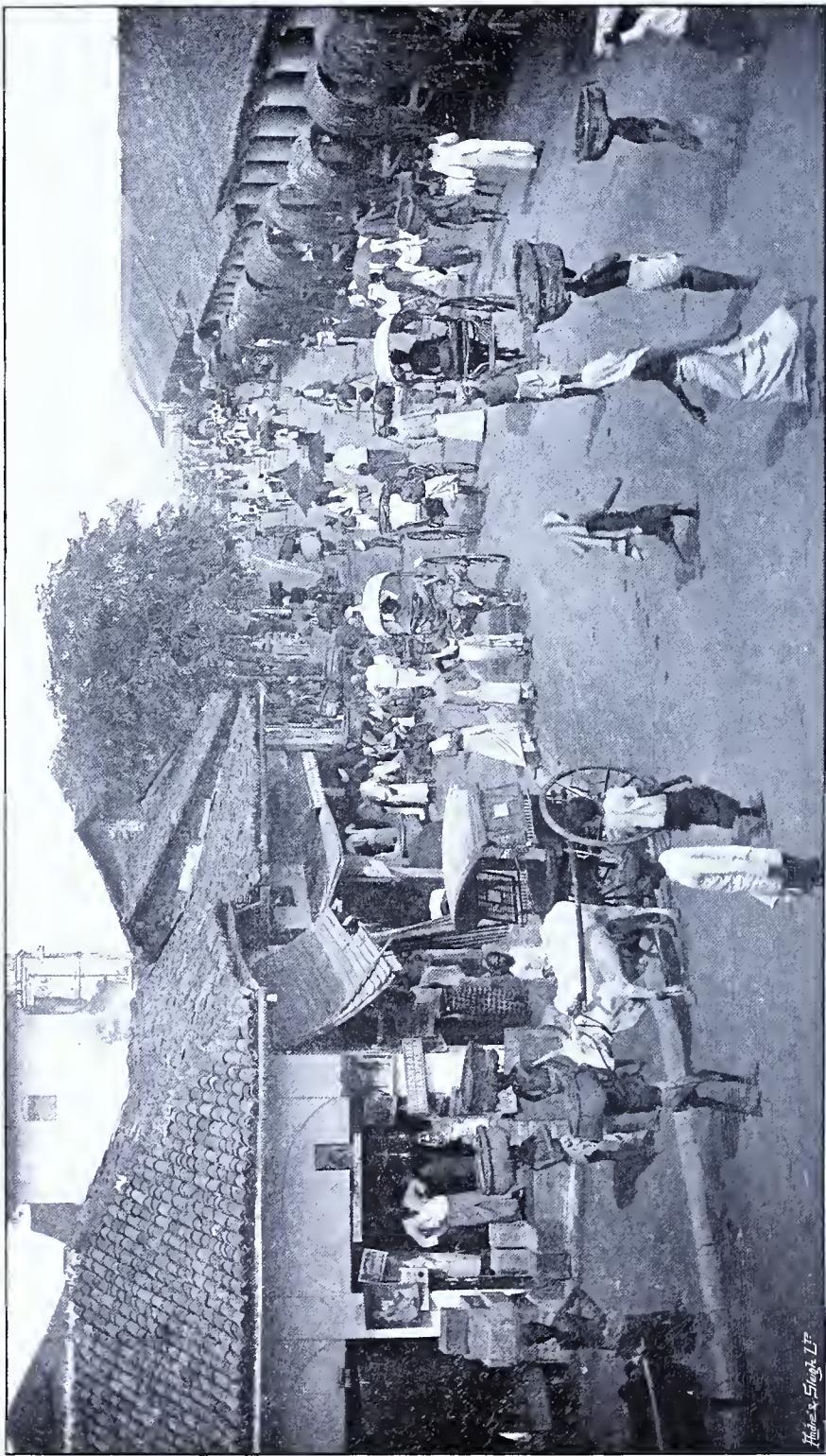


TAMIL COOLY GIRLS.

the education of the Island is in the hands of religious missionary bodies; no distinctions or privileges being accorded to any religion or society, but all are equally encouraged. The Government control is limited to the enforcing of a few departmental regulations and to the holding of examinations by a staff of Government Inspectors, for the purpose of awarding grants-in-aid in proportion to the percentage of children who pass certain prescribed standards. By this system of grants-in-aid in proportion to the successes achieved at each school the Government obtains the maximum of assistance in the education of the masses at the minimum of cost.

The Government Department of Public Instruction is limited to a staff consisting of a Director, four Inspectors (only one of whom is English), and thirteen Sub-Inspectors (all of whom are natives of Ceylon); the Department maintains one High School and one Technical College in





NATIVE LIFE IN COLOMBO.

*Photo by the Colombo Apothecaries' Company.*

LE QUARTIER INDIGÈNE À COLOMBO.

*Hood & Ellett Ltd.*

Colombo; the other schools under Government control are only established in those outlying parts whither missionary enterprise has not yet penetrated, and are devoted almost entirely to elementary education in the vernacular languages, Sinhalese or Tamil. As missionary effort penetrates further and further, the Government Department is generally prepared, subject to local consent, to give way to private enterprise and, in closing the Government school, to devote the funds thus saved to further pioneer work in the villages of the interior.

The Missionary Societies, on which falls the direct brunt of education in the towns and populous centres, afford an immense variety. The Roman Catholic element is the largest, the longest-established, and the wealthiest. But the Roman Catholics again are sub-divided into a number of separate organizations, which work independently within defined areas under the authority of the College *Propaganda Fidé* at Rome. In the first place, a Seminary for the education of the native priesthood in India and Ceylon is established in Kandy, under the control of a Papal Delegate. The North and West of Ceylon are assigned to the French Society of the Oblates of Mary Immaculate, under the control of the Archbishop of Colombo and the Bishop of Jaffna. The central portions are assigned to the Order of Benedictines—chiefly Italian—under the Bishop of Kandy. The southern and eastern portions are assigned to the Belgian Province of the Society of Jesus, under the control of the Bishop of Galle and the Bishop of Trincomalee.

The Church of England is represented by the Bishop of Colombo and a staff of Chaplains, by the Society for the Propagation of the Gospel, and by the Church Missionary Society.

The Wesleyan Mission is remarkably large and well-organized; the American Mission, established in the North of the Island, performs valuable educational work; and the Baptist Mission, the Church of Scotland, and the Dutch Reformed Church are also represented in the ranks of the educationalists.

Finally, two societies recently formed, and still in the early struggles of existence, have appeared to bestow free education and to propagate the principles of Buddhism. It is a matter for regret, however, that the Buddhist priesthood is neither willing nor competent to enter into the competition for education among the villages, where their influence for good might be great.

It is a source of good fortune to the Government and to Ceylon that so many societies should devote their energies and means to the education and civilization of the people.

Each society contains within its ranks men, not only of deep devotion, but of high scholastic attainments and of great organizing and administrative capacity. All societies, creeds, and nationalities are equally welcomed ; all work in harmony with the administrative officers, who accord their moral support to all alike ; and representatives of the Church of England, the Roman Catholics, the Wesleyans, and the Buddhists, sit together on a Consultative Board of Education to advise the Director on questions connected with the working of such voluntary schools as receive aid from the public revenue.

Apart from the work done in elementary education, there are High Schools in Colombo which provide a curriculum which includes an elementary knowledge of the classics, mathematics, and science. Besides the Government institution, the Royal College, highly successful schools have been established by the Church of England, the Roman Catholics, and the Wesleyans.

The defect in the system of education—if a convention between the Government and the societies above enumerated can be styled a system—is the absence of a finishing University. The Burgher classes and the Sinhalese and Tamils alike contain youths of remarkable natural capacity and industry, who have achieved conspicuous success in the fields of competition open to them. But no local means are yet provided for the completion of the education commenced in the High Schools. One Government scholarship of £150 a year for four years, to be spent at an English University, is awarded annually; and promising youths and the sons of wealthy parents must go to Europe for the completion of their education. The time is ripe for the establishment of a Colombo University, at which, with the staff of professors available on the spot, a thoroughly good education can be furnished in all branches of learning and applied sciences.

Full details can be obtained at the office of the Ceylon Court regarding the curriculum and standard of education; the methods of inspection and examination ; the regulations enforcing attendance ; the legislation provided, but not yet applied, for the Municipal control of education ; instruction in drill and physical exercises, singing, drawing, cookery, manual training, hygiene, and domestic economy ; and the selection, training, payment, and pensions of teachers.

A Technical College has recently been established by the Government in Colombo, designed to provide trained youths for the service of the Railway, the Survey, and the Public Works Departments, and in the Telegraph and Telephone Branches of the Postal Department. Efforts are also being

made to reorganize a school for education in Agriculture and Forestry. Reformatories and Industrial Schools have also been started. A Medical College, attached to the General Hospital at Colombo, is referred to under a subsequent heading, which deals with the Colonial Hospitals and Medical staff.

Judged from a European standpoint, the provision made for female education is inadequate; but the special conditions which must be taken into account have to be considered in an Eastern country, where caste and customs are opposed to the education of women. There is not, however, any Eastern country in which the prospects of the introduction of female education are more promising, or where those who lead public opinion in the native communities are more ready to support projects for the introduction of girls' schools.



KANDYAN LADY.

### **Public Works.**

The construction and maintenance of all Public Works—except the Colombo Harbour and the Government Railways—are in the charge of a separate Department, officered by about seventy qualified engineers under the control of a Director of Public Works, himself a distinguished engineer, who is responsible direct to the Governor. The Director occupies a seat in the Legislative Council, and is able to explain and defend in Council the annual estimates of Public Works prepared by the Government for the sanction of the votes in the Legislative Council.

The total charges for Public Works in 1898 amounted to Rs. 3,779,775 (excluding Rs. 410,228 for establishment), and are divided under the heads (1) works annually recurrent and (2) new works; the figures for 1898 being Rs. 1,900,307 and Rs. 1,879,467, respectively. The works annually recurrent include the maintenance in a high condition of excellence of 3,570 miles of high roads, at a charge in 1898 of Rs. 1,345,890, or Rs. 377 per mile.

Most of these roads are macadamized, and the internal trunk road communications are maintained in a condition equal to that of any country. From the total mileage quoted above are excluded the roads within Municipal limits (about 160 miles), which are maintained by the Municipal authorities, and the minor roads (exceeding 10,000 miles), maintained by District Road Committees presided over by the District Revenue Officers. Besides these there is a very large mileage of inter-village paths which are maintained by the Village Committees under the direction of the Revenue Officers and the chief native headmen of the divisions. Other items under the head of Public Works annually recurrent are the maintenance of Government buildings, of bridges, irrigation works, and inland navigation.

The new works scheduled in the Supply Bill for 1900 at a cost of about two million rupees—the year being one in which exceptionally large expenditure will be incurred—include the extension of the main roads, the building of bridges, the erection of new hospitals, and the construction or restoration of irrigation works.

#### *Irrigation.*

Great attention is paid to the improvement and development of irrigation works, of which the colossal ruins remain to show the quondam resources of the Island in its periods of prosperity extending from the commencement of the Christian era to the close of the fifteenth century. The selection of the irrigation works to be restored is entrusted to Provincial Irrigation Boards presided over by a Revenue Officer of the Civil Service, the whole controlled by a Central Irrigation Board, of which the Governor is himself the President. The execution of new works and the maintenance of existing works is entrusted to the Director of Public Works, whose staff includes seven engineers specially trained for irrigation works. The last fifteen years have been marked by the restoration of several enormous works, which by the light of modern science have been reconstructed on sound principles, and bid fair to renew in the waste places of the north-central divisions the golden age of prosperity which had passed away for centuries. The progress of re-peopling a region which, without a sufficient rainfall, is dependent on a copious water supply obtained by artificial means for the cultivation of rice, the national food, is necessarily slow; but as the systematic restoration of the chief works advances the tracts which have now relapsed into forest, grown over the remains of ruined cities, may be rendered capable of again supporting a large population.



LA JETÉE, COLOMBO.

Photo by Mr. H. W. Cawie.

COLOMBO BREAKWATER.

Smith & Sons



The largest work, achieved under the auspices of Sir Arthur Gordon (now Lord Stanmore) within his term of Government (1883-90), is the Kalawewa, an artificial reservoir which, as restored with its subsidiary channels at a cost of nearly half a million rupees, contains a supply of water sufficient to fill canals of a hundred miles in length and a large number of subsidiary tanks ending at Anurádhapura, the ancient capital, irrigating in all some 66,000 acres.

The great work now in course of restoration on the north-west side of the Island is the Giants' tank, an enormous reservoir filled by floods during the rare rains of that locality; it is situated near Mannar, a neighbourhood rendered famous as the scene of some of the most successful labours of that greatest of Christian missionaries, St. Francis Xavier. An enormous system of waterways and tanks, leading from near Kandy as far as Trincomalee, has been partly restored, and it is under contemplation to renew the old works on a commensurate scale, and thus to re-introduce the means of sustaining life along a line extending for two hundred miles from the north of the central mountain region to the north-east coast.

#### *Colombo Harbour.*

The greatest of the modern works has been the construction of a harbour at Colombo, the capital of Ceylon, an engineering feat which ranks among the highest and most successful of its kind. This work by the time it has reached completion will have taken thirty years to construct, but although another five years will elapse before the final works are closed, it has already transformed Colombo from a mediæval town into a busy mart, frequented by all the tonnage of the Eastern and Australian seas.

The Colombo south-west breakwater was commenced in 1875, and was completed in 1885. It consisted of a single arm composed of large concrete blocks on a rubble foundation, running from the shore a distance of 4,200 feet in a northerly direction, terminating with a slight curve.

In 1893 a northern arm, a north-west breakwater, and the reclamation of 26 acres on the east side of the harbour, were sanctioned, and work in connection with these commenced in May, 1894. The northern arm is to be a rubble embankment, 1,000 feet long, trending in a westerly direction with an entrance 700 feet wide between it and the north-west breakwater. The north-west breakwater is to be similar in construction to the south-west breakwater and 2,670 feet long, allowing for an entrance 800 feet wide between it and the south-west breakwater.

The total expenditure on the harbour from 1873 to 31st

December, 1898, was Rs. 18,273,554. When the breakwaters are completed the area of the harbour will be about 640 acres (1 square mile), and the depth over a large area will be 40 feet at low water. The construction of a graving dock, the largest between Malta and Hongkong, and a patent slip has been commenced.

#### *Waterworks.*

Works have been constructed for the storage and supply of water to Colombo. A supply of water practically inexhaustible is stored in a capacious reservoir at Labugama, 25 miles distant from Colombo, and is conveyed by piping to the service reservoir at Maligakanda, whence it is distributed through the town. The total cost of the scheme was Rs. 4,330,000. It has now been resolved to duplicate the main from Labugama to the city and to construct a second storage reservoir, which will increase the daily supply of pure water to Colombo to over six million gallons daily, thus allowing of a daily supply of some 40 gallons *per capita*.

#### *Tramways.*

A system of Tramways has been established in Colombo, of which the power is supplied by an electric overhead service. The enterprise is due to private capital under a concession from the Municipal Council of Colombo. Other works inaugurated in Colombo include the introduction of electric light supplied at a cost of 44 cents per unit, a service of electric launches on the Colombo lake, and a service for the removal and destruction of refuse. Schemes are under consideration for the construction of an underground system of drainage.

#### *Railways.*

The development of Railways has, owing to the many checks and safeguards against imprudent expenditure involved in the system of Government of Crown Colonies, advanced slowly,—more slowly than would have been the case had private enterprise and capital been permitted free scope.

The Railway System is however Crown property, and applications to construct lines with private capital have been discouraged. The total mileage open is  $297\frac{1}{2}$ , the original capital cost of construction having been Rs. 57,861,517, being at the rate of nearly Rs. 200,000 per mile, a charge which is not excessive having in view the facts, that much of the country traversed was exceedingly difficult, that the gauge was 5 ft. 6 in., and that the permanent way buildings and rolling stock were all of the best quality. The original capital has now been reduced to Rs. 32,976,723.

The gross earnings in 1898 were Rs. 7,549,620 and the working expenses Rs. 3,609,944, or about 48 per cent. The profits were Rs. 3,943,676, equivalent to 6·82 per cent. on the total capital raised, or 12 per cent. on the capital as it now stands.

The official returns for 1898 give the train mileage at 1,206,348 ; the weight of goods carried at 481,664 tons ; and the number of ordinary passengers as 5,141,355.

Large extensions of the Railway System have now been sanctioned, practically doubling the present mileage, the most important being a trunk line through the north-central districts, which are scantily populated, to Jaffna in the North, a hive of industry which at present depends for its communication with the world on a small coasting service. This line will also bring Trincomalee, the Naval station, into closer communication with the rest of the Island, and will prove of strategical value.

Two other lines, to serve the tea planting industry in the Kelani Valley and in Uda Pussellawa, are to be constructed on a narrow 2 ft. 6 in. gauge.

### **Postal Service.**

The Postal, Telegraph, and Telephone services are administered in one Department, a notable feature of which, as in all the administrative services in this Crown Colony, is the smallness and cheapness of the supervising staff.

The total revenue in 1898 was Rs. 963,000 ; and the expenditure Rs. 932,376. The number of post offices was 149 and of telegraph offices 69. The staff numbered 1,107. The telegraph mileage was 2,120 and the telephone 182 miles.

Letters to the weight of one ounce are carried locally, and of half an ounce to India, for five cents ; throughout the British Empire, except the Australasian Colonies, which have not yet adopted the Imperial penny postage, for six cents, the equivalent of one



A SINHALESE POSTMAN.

penny ; and to other countries for fifteen cents. Inland telegrams of eight words with the address free can be despatched for 25 cents, i.e., fourpence. The need for material reduction in the charges for foreign cables is keenly felt.

Inland money orders were issued to the value of Rs. 4,559,862; telegraphic money orders to India to the value of Rs. 1,066,567; and ordinary Indian money orders, Rs. 1,725,203. The bulk of these remittances to India—perhaps about two million rupees—represent, together with the sums which one may carry on his person, the annual savings of the Tamil immigrant cooly, through whose free labour the tea estates of Ceylon are kept under cultivation.

### **Police.**

The control of the Police and Prisons is united in one officer, an Inspector-General, responsible direct to the Governor. The organized force of trained and disciplined Police is some 1,700 men and officers. Of these, the Inspector-General, 9 of his officers, and 23 men are British by birth. Of the rank and file, one-fourth are Sinhalese Buddhists; of the rest, many are Malays born and bred in Ceylon of the Mohammedan faith, a few are Indian Mohammedans, a considerable number are Hindus (Tamils) from the South of India, and some 200 are native Christians. It will be noted that both by race and by religion the component parts of this force show much diversity; but as an effective force in dealing with such riots as do occur, generally due to dear rice or religious disputes, they have shown themselves possessed of personal courage, good discipline, and remarkable *esprit de corps*. But in intelligence they are generally defective, and it is considered difficult to rely upon the bulk of them in the investigation of crime when exposed to temptation.

The great bulk of the population—especially in the rural districts—is preëminently law-abiding. They are litigious in the extreme and false evidence is rife in the Law Courts, but the number of crimes of violence or robbery is comparatively low. The worst feature is the proneness of the Sinhalese to draw the knife in the course of a quarrel: the number of stabbing cases is due partly to the fact that most of them carry a knife for use in their agricultural occupations, and are tempted to use it. As most of the lower classes are uncovered above the waist, fatal or serious results often follow from a blow which the ordinary clothing of European countries might have rendered comparatively harmless.

The total cost of the police is Rs. 650,000 a year.



GROUPE DE PRÉTRES BOUDDHISTES.

*Photo by the Colombo Apothecaries' Company.*

GROUP OF BUDDHIST PRIESTS.



Foto A. & Sons Ltd.

### Prisons.

There are 23 prisons in the Island, most of which, however, are on a small scale, the bulk of the long-sentence prisoners being concentrated in the well-organized Convict Establishments of Colombo and Mahara. The average daily strength in the prisons is 2,271 and the average annual cost of maintenance per prisoner is about Rs. 205, or under £15. A large force is at present employed in works connected with the improvement of the Colombo Harbour. The rest are mainly employed in breaking stone, beating cocoanut husk, and in prison services. The work to which men are put is more of a deterrent than of a remunerative character. The total cost of the administration of the prisons is about Rs. 450,000 annually.

### Hospitals.

There are 64 hospitals and asylums and 242 dispensaries maintained by the Government, and worked by the Civil Medical Department, which is presided over by the Principal Civil Medical Officer and Inspector-General of Hospitals. This Department includes 131 medical men, 2 medical women, and 227 apothecaries. In the year 1898 the expenditure amounted to Rs. 1,544,149 gross, Rs. 1,131,060 net.

53,564 patients were treated in the hospitals and asylums and the death-rate was 13·71 per cent. A Medical College exists in connection with the Colombo General Hospital : the curriculum for students is five years; a diploma to practise medicine, surgery, and midwifery is granted after examination.

During 1898, 104 patients were received into the Lunatic Asylum, Colombo, and 127 into the Leper Asylum.

### Religion.

In respect of religion the population of Ceylon is thus divided :—

Christians	...	350,000		Buddhists	...	2,030,000
Hindus	...	940,000		Mohammedans...		230,000

Of the Christians, a large majority—some 275,000—are Roman Catholic descendants, mainly of those christianized by the Portuguese. Many conversions were originally no doubt made at the point of the sword ; but the brilliant example of St. Francis Xavier, the most famous of the early missionaries of Christ, has been followed enthusiastically by many earnest men—Portuguese, Italian, French, Belgian, and Irish—up to the present day. The Roman Catholic Missions—of which there are now three separately organized—have

clearly-defined spheres of action under separate episcopal rule. Their influence is very great among the sea-borne villages, and chiefly among the fisher and carpenter castes. The whole coast line is beautified by their churches (the Cathedral of St. Lucia in Colombo being specially handsome). The influence of the priests was always exerted in consort with the Administration, their co-operation being often of much value.

During the Dutch Administration Christianity did not make many converts ; but the Dutch Reformed Church has still a flourishing organization among the better class of Burghers, and their church at Wolfendahl in Colombo is a quaint and picturesque sample of the architecture of the Low Countries.



CEYLON AND COAST MOORMEN.

The Church of England has a considerable and increasing following and an admirable organization, considerably strengthened in all essentials by the disestablishment of the Church, as a Department of State, in 1878. Since it has been thrown on its own resources it has developed rapidly, and is now served by a large number of missionaries, whose self-denial and earnestness of purpose are of themselves an excellent object lesson to the people for whose good they devote their lives.

The Wesleyan and Baptist Missions have also done good work, especially in the direction of education.

The Hindus, who are increasing by immigration more rapidly than any other religion, are mainly Sivites, and maintain the traditions of their faith, although perhaps the restrictions of caste are less onerous than on most parts of the neighbouring continent.

The Mohammedans, nearly all of the Sunni sect, are, although here as always strict in the observances of their

faith, remarkable for the absence of that intolerance and fanaticism which so often characterizes this religion.

The form of religion, however, which is most characteristic of Ceylon is Buddhism, which has a longer continuous history here than anywhere else. It is Buddhism of the "Southern" school; and its teaching claims to be a faithful representation of that which was originally propounded in the valley of the Ganges in the sixth century B.C., and which is formulated in the three-fold collection of Páli treatises called the "Tipitaka." This is rather a system of human conduct than a religion, since it has no place for worship, prayer, or approach to a person. The Buddha is the title of the teacher, Gautama by name, who first in this cycle of the world discovered the true nature of existence, and has taught it for the benefit of all classes of living beings. The secret discovered and taught is briefly this: that evil is inseparable from existence, and that there is therefore no other way of escaping evil but to escape existence. To this purpose the disciple is taught to destroy in himself all which tends to attach him to anything, to maintain him in any relations with the external world, or to foster in him any desire for it; and so to withdraw himself from existence. This withdrawal is called Nirvána, and is virtually attained as soon as there is no longer any danger of any other life succeeding this one. It is finally entered on when the last life comes to an end. This theory wears however a very different aspect when it comes to be worked out in detail. The chief obstacles to escape from existence are held to be lust, anger, pride, and error; and the circumstances favourable to such escape to be purity, kindness, meekness, and insight. In the insistence on those moral principles the Buddhist teaching, as found in the "Tipitaka" and the commentaries thereon, attains a high level of excellence: and an immense collection of illustrations, fables, and legends sets its moral injunctions in a strong light.

Externally, the Buddhism of Ceylon is seen in graceful processions, simple offerings of flowers, and in the maintenance, by the daily alms of the common people or the liberality of the rich, of nearly 10,000 "priests," or more correctly "monks," whose dignified figures with their shaven heads and toga-like yellow robes are one of the characteristic elements in the picturesque scenes of the Island.

This brief epitome of the Administration and Government of Ceylon tends to show the present system is well suited for the present needs of the people of Ceylon, and that the very elasticity and adaptability of the system thus evolved by slow degrees will enable it to adapt itself in the future to

the varying conditions inevitable in a country progressing towards civilization. On the other hand, the readiness with which the British commanders accepted Dutch institutions at the Capitulation in 1796, and Kandyan customs in the Conventions of 1815 and 1818, involved the Government for many years in the maintenance of systems which are calculated to retard the advancement of the fortunes of the country, and which were in their essence repugnant to those ideas of liberty and equality before the law which are traditional in England. And for many years there was no real progress made in Ceylon, while the burdens exacted both in the maritime provinces through the narrow and jealous monopolies of the Dutch of the old *régime*, and in the Kandyan provinces by the exactions of forced labours and the unbounded privileges of the chiefs, were productive of much discontent. Ultimately, the appointment in 1830 of Commissioners of Inquiry upon the Judicial Establishments and Procedure in Ceylon led to the sweeping away of many abuses and to the adoption of what is practically the present constitution of Government in Ceylon.

A perusal of the report of Lieut.-Colonel W. M. G. Colebrooke, one of His Majesty's Commissioners, dated the 24th December, 1831, cannot fail to arrest the attention of those responsible for the civilization of Tropical Colonies still in an undeveloped condition. The calm and judicial tone of the examination into the institutions then existing, the accuracy with which the worst evils were discerned, and the good sense in the proposals for remedying them, might serve as a model for those who should be entrusted at any time with the performance of a similar mission. Above all, there is matter for reflection in the success which has followed the administration of a dependency in which the solution of problems has been grappled with at first hand by the individual effort of a carefully selected and well-paid body of local administrators, unfettered by the rigidity of constitutions and codes. Finally, the system justifies itself in the fact that capital and enterprise, which monopoly and restrictions could not attract, have been attracted and fostered by the freedom of the individual and the abolition of privilege.

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[The compiler desires to express his acknowledgments to Mr. J. FERGUSON for the great assistance obtained from his invaluable Ceylon Handbook and Directory, and to His Lordship the BISHOP OF COLOMBO for permission to take extracts from a paper dealing with Religions in Ceylon. The figures quoted are derived from the latest official returns.—W. E. D.]



PLANTATION DE THÉ.

Photo by A. W. A. Pilette & Co.

VIEW OF A TEA ESTATE.



Foto A. W. A. Pilette & Co.



ADAM'S PEAK FROM MASKELIYA.

## THE TEA INDUSTRY OF CEYLON.

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WENTY years ago tea was practically unknown in Ceylon : its cultivation on an extensive scale was undreamed of. In 1900 Ceylon produces a considerable proportion of all the tea grown throughout the world : the area under its cultivation is approaching 400,000 acres (150,000 hectares) ; its value exceeds £3,000,000 sterling, and the trade created by the industry—such as the importation of food stuffs, machinery, and packing requisites, as well as the export of tea—amounts to £7,000,000 sterling ; the direct profits suffice to make prosperous a body of enterprising colonists from Europe and a swarm of Tamil coolies from the poorest and most crowded parts of Southern India, and the indirect profits have filled the exchequer of the Ceylon Government, so that the Island is one of the richest and most prosperous of the Tropical Colonies of the World.

The history of the great agricultural industries of Ceylon—coffee first and later tea—reads like a romance, but to appreciate the extraordinary vitality shown by the colonists when face to face with utter ruin from the collapse of coffee, a few words are needed to trace the cause which led the Ceylon planters to introduce the cultivation of tea.

Ceylon is essentially an agricultural country ; it does contain mineral wealth, but minerals remain still but partially developed, and it is improbable that its rich deposits of iron ore will ever serve to enrich the colony, through lack of suitable fuel. Almost the sole occupation of Ceylon under the Sinhalese princes was the growth of rice to feed the villagers. Such cultivation was possible only in the plains

and under irrigation. So the great central mountain zone was left untouched, clad in its virgin forest.

This unoccupied mountain land has been the centre of the living life of Ceylon. It possesses a lovely climate and an equable temperature, in which European races can live and thrive; and the economic history of Ceylon has for most of this century been bound up in the prosperity or depression of the industries carried on by the European pioneers in this mountain country which they found so desolate, but which has under their treatment yielded the wealth which has led to the development of all parts of Ceylon.

Last century, when the seaborde of Ceylon was under Dutch administration, all enterprise was limited to a strip of land along the coast, and the energies of the rulers were directed to the control of monopolies,—a policy which aimed at the regulation of the yield and the maintenance of high prices. The policy which dictated the destruction of the surplus yield of cinnamon, rather than allow the supply to exceed the demand, though it led to the enrichment of the Home Government and of the favoured few of the official classes, was opposed to the economic development of the land's resources. Such economic fallacies, however, which were common to all rules last century, have now disappeared, and the modern administration of the great Dutch dependencies of Java and Sumatra—though differing in essentials from the British type—is every whit as enlightened and is as fully bent on the full agricultural devlopment of those most fertile lands.

The modern development of Ceylon dates from the administration of General Sir Edward Barnes, who was Governor of Ceylon from 1824 to 1831. To his sagacious policy is due the opening of the interior by the construction of trunk roads, and by his personal example he led the way to the development of the high lands by the cultivation of products in demand in Europe, especially coffee.

Thus commenced the history of the coffee plant in Ceylon, in which days of dazzling prosperity were followed by nights of profound depression. From 1836 to 1845 the progress of development was rapid; every ship brought adventurous spirits from all corners of the world to share in the prevailing prosperity; enormous fortunes were acquired, most of which were again lost in the succeeding years of financial depression. The inflation, which had followed the ready loan of capital, was rudely checked; hazardous enterprises for the opening of unsuitable land failed, and for ten years the failure of credit and of crops united in staying the flow of prosperity. The revival of the enterprise was coincident with the

energetic administration of Sir Henry Ward (1855-1860); and, despite occasional series of bad seasons, the coffee enterprise thrived until, in the season of 1874-75, it reached its highwater mark of prosperity, when nearly 400,000 acres (150,000 hectares)—in European and native hands—were covered with coffee, and the exportation amounted to nearly one million hundred weights (45 million kilos) valued at some £5,000,000. But in 1869 had appeared a new enemy to this delicate exotic plant in the form of a fungus, known in botanical parlance as *Hemileia vastatrix*; and despite the efforts of experienced planters supported by all the scientific knowledge enlisted to their assistance by the Government, the disease spread rapidly, and by 1880 had effected the destruction of the cultivation of coffee as the great staple trade of the country. The quantity of coffee exported fell rapidly and continuously from year to year, until in 1898 the figures for the export of coffee show a total of just one hundredth part of the figures for 1874.

Thus, in the period from 1880-1885 the Colony seemed to stand face to face with the collapse of the European enterprise: all inflow of money ceased; the alarmed capitalists endeavoured to withdraw their loans, and precipitated the downfall of the planters, who were unable any longer by liberal cultivation to stay the progress of the pest; and desolation alike befell the Government, whose revenues fell by one-third, the planter who saw the fortune—the fruits of his labours and enterprise—fade away to nothingness, and the Tamil cooly who could no longer get employment. The final blow was struck by the collapse of the Oriental Bank Corporation, the principal banking institution of the Island.

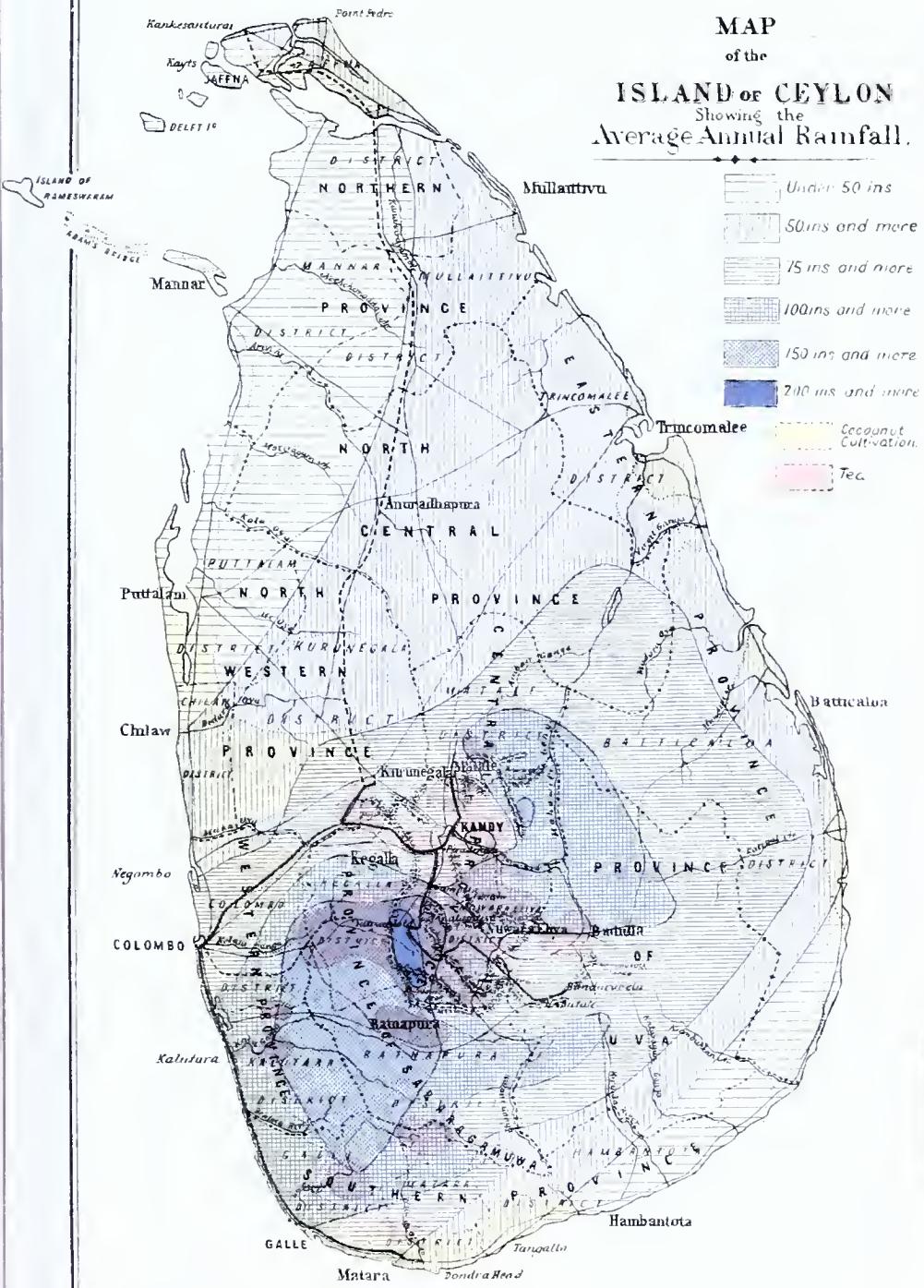
In this time of trouble all hands turned to redeem their fortunes. The reins of Government were in the hands of a most brilliant and experienced Governor, Sir Arthur Gordon (1883-1890), now Lord Stanmore; the planters turned their attention to the development of some new product to take the place of coffee; and the fidelity and loyalty of the coolies and the local native traders of the Chetty community during the fallen fortunes of their employers was often beyond all praise. The first product introduced was CINCHONA, a tree from whose bark is produced the febrifuge quinine. The rise and fall of cinchona is a short chapter in the agricultural history of Ceylon, but it bridged over the most disastrous period in its history. The yield, which was nothing in 1877, reached during the period between 1884 and 1888 an average exceeding 13 million pounds of bark: that is to say, more than half the total yield of the world. But the sudden influx of so enormous a quantity caused the collapse of the

European market. The price per pound of bark had been known to be as high as 17 shillings, and up to 1883 averaged one shilling and eightpence : by 1890 it had fallen to three-pence ! The average price of quinine in London was 12 shillings per ounce in 1880 : the average has since fallen to one shilling and threepence. The export from Ceylon of 120 million pounds in sixteen years has been fatal to the trade and enterprise itself; but it had two grand results. Locally it saved Ceylon planting from utter ruin and provided many planters with the capital to convert their coffee lands into tea and cacao ; and for the world at large it has conferred the universal benefit of reducing the cost of quinine from a figure, which made its use almost prohibitive, to a rate which has enabled its use, as a remedy and preventive, to be spread throughout all the fever-stricken countries of the world.

The cultivation of cinchona had enabled many planters to stave off the ruin which appeared certain to overtake all the European enterprise of Ceylon, which had been wholly dependent on the growth of coffee, and enabled them to raise sufficient capital by dint of the most strenuous economy to convert the old coffee land into tea gardens. Yet before it had been discovered that the tea plant would grow and thrive at any elevation and under almost any condition of soil and climate within the mountain zone and the western slopes to the sea, the enterprise of the undaunted colonists never showed itself with greater pertinacity than in the endeavour to seek some other staple. The cultivation of cacao was closely studied and widely introduced ; various kinds of indiarubber trees were planted and tested, gums and resins, pepper and vanilla, cardamoms and fibres,—all were tested in their turn. But, except that cacao was found to do well in certain specially favoured spots, and that cardamoms were found to be a lucrative crop to supply a limited market, all these experiments gave way before the cultivation of tea.

The cultivation, however, of CACAO has been found to be a valuable adjunct to the resources of the Island, and although the area planted with cacao is limited, and the trade cannot therefore assume large proportions, a study of the development of this form of tropical cultivation is interesting. In 1878 only 10 cwt. were exported ; in 1887 this total had increased to 17,460 cwt. ; and the figures have steadily increased until in 1897 the total stood at 35,121 cwt. Ceylon cacao promptly won a high place in the estimation of buyers, and the price has rarely fallen below 70s. the cwt., and has at times been as high as 112s. The crop is however uncertain, depending much on the seasons, and the plant is liable to attacks from many natural enemies ; nor is the soil

MAP  
of the  
**ISLAND OF CEYLON**  
Showing the  
Average Annual Rainfall.



Scale of 38 Miles to an inch.



of Ceylon generally rich enough to yield such heavy crops as appear to be raised in the West Indies. The average cost of production is some 30s. a cwt., and the average yield per acre may be set down at 2 cwt. The total extent under cultivation is now 21,000 acres; the total area suitable for cultivation under this product is not more than 30,000 to 40,000 acres.

The strenuous efforts made to find a paying substitute for coffee cultivation are as well illustrated by the development of the growth of CARDAMOMS. The cardamom (*Amomum subulatum*) is a scitaminous plant bearing seed pods, and is grown chiefly in Southern India, the Eastern Archipelago, Madagascar, and the West coast of Africa. In Europe the seeds are used as a spice and flavouring material for cakes and liqueurs; in India their uses are more extended. Up to 1881 the crop from Ceylon was mainly in native hands, and the exports were under 20,000 pounds, and the price was then as high as two rupees per pound. In eight years the area under cultivation was increased four-fold and the yield twenty-fold, and the price fell, owing to over-production in a limited market, to Re. 1 per pound: the value now being about Re.  $1\frac{1}{2}$  per pound. The yield on an average is 100 pounds per acre under high cultivation. On suitable soil and where the fields can be guarded against thieves, the yield is much higher and the returns most profitable. But the area suitable for cardamom cultivation is limited and the market is always in danger of being overstocked.

Eventually, after a few years' struggle to keep alive the dying coffee and to find substitutes for it as a staple product—a few years which involved not only the planters themselves, but the merchants and the natives of all classes in the direst straits—it was at last realized, about 1880-83, that the climate of Ceylon was suitable to the successful cultivation on a large scale of TEA.

The subsequent development of this knowledge cannot be more strikingly shown than by the figures showing the yearly increase in the area under cultivation from the earliest years, when a few experiments were started, to the returns of 1898:—

Year.	Acre.	Year.	Acre.
1867	...	1876	...
1868	...	1877	...
1869	...	1878	...
1872	...	1879	...
1873	...	1880	...
1874	...	1881	...
1875	...	1882	...
	10		1,750
	200		2,720
	250		4,700
	260		6,500
	280		9,274
	350		11,350
	1,080		22,000

Year.	Acre.	Year.	Acre.
1883	... 32,000	1891	... 250,000
1884	... 77,000	1892	... 262,000
1885	... 102,000	1893	... 273,000
1886	... 150,000	1894	... 289,000
1887	... 170,000	1895	... 305,000
1888	... 183,000	1896	... 330,000
1889	... 205,000	1897	... 350,000
1890	... 220,000	1898	... 364,000

The corresponding returns of the Ceylon Chamber of Commerce showing the exports of made tea since 1876 also afford remarkable figures, and afford testimony which needs no comment on the vitality of British enterprise in the Colony of Ceylon :—

Year.	Pounds.	Year.	Pounds.
1876	... 332	1888	... 24,400,776
1877	... 1,883	1889	... 33,546,112
1878	... 18,317	1890	... 46,913,955
1879	... 80,603	1891	... 68,255,546
1880	... 114,845	1892	... 71,143,366
1881	... 350,176	1893	... 84,365,152
1882	... 660,770	1894	... 84,584,400
1883	... 1,645,925	1895	... 97,939,871
1884	... 2,422,322	1896	... 108,141,412
1885	... 4,288,975	1897	... 116,054,567
1886	... 8,109,126	1898	... 119,769,071
1887	... 13,813,872	1899	... 129,894,156

In 1883, when for the first time the import of Ceylon tea into Great Britain reached one million pounds, the consumption was 176,780,000 pounds, towards which total China, India, and Ceylon contributed in the following proportions :—

China	...	...	...	...	66 per cent.
India	...	...	...	...	33 do.
Ceylon	...	...	...	...	1 do.

In 1897 the total consumption had increased by 50 per cent., but the proportions to the total were contributed in this wise :—

India	...	...	...	...	54 per cent.
Ceylon	...	...	...	...	37 do.
China	...	...	...	...	9 do.

This marvellous diversion of a staple trade, from the old-established centre of manufacture in China to new and younger rivals, has been effected not only in an absolutely free market, where no preference is or can be shown, but even in the face of disadvantages accruing to the producer in

India and Ceylon, owing to the artificial rise in the exchange value of the rupee due to recent legislation, a rise which operates disadvantageously to the Indian and Ceylon planter in competition against the Chinese manufacturer.

The key to the situation is the superiority in value, purity, and cleanliness of tea, as made under European supervision and by the aid of the best machinery, when compared with the primitive methods of hand labour still in vogue in China, as also to the combination of strength and flavour which is peculiar to Ceylon tea.

The varieties of the tea plant are very numerous, but they are all referable to three species, one of which, indeed—*Thea assamica*—botanists now incline to regard as the parent species of the two others. The tea plant is an evergreen shrub, which in its wild and natural state attains a height of twenty feet, but under cultivation seldom exceeds four feet, owing to the regular removal of its young shoots by the cultivator. Its stem is bushy, with numerous and very leafy branches; its leaves are alternate, elliptical, serrated, and veined; and its flowers are white and slightly fragrant. As may be readily imagined, planters do not speak of the varieties of the tea plant by their botanical names. The terms of distinction employed on an estate are—China, indigenous, and hybrid. Some of the most marked differences between the first two of these may be mentioned. The fully-developed leaves of a China plant are only about four inches in length, and are of a dull dark green colour; whilst those of an indigenous plant are from seven to nine inches long, and are of a light green colour. The former is hardy and capable of thriving under many different conditions of climate and situation, whilst the latter is tender and difficult of cultivation. The China variety produces much tougher leaves, is more prolific of seed, and runs more to wood than the indigenous. Indigenous and good hybrid plants "flush"—that is, produce new tender shoots—much more frequently and copiously than does the China, and, as their leaves are large, give a considerably greater yield. As tea is made only from leaves of fine and soft texture, it will be understood why it is that indigenous and good hybrid plants are cultivated throughout the Island in preference to the China variety. In the hot low-country districts each field of an estate is plucked about once in eight days, while at high elevations the interval between the flushes is somewhat longer and averages about ten days. The majority of the coolies employed in plucking are women and children. Not only are they naturally better adapted than men to be good pluckers, but they have also much more practice.

The system of *plucking leaf* may be best described by the help of the accompanying diagram of a small branch of the tea plant. Plucking is said to be "fine," "medium," or "coarse." If we name the leaf-bud *a*, the first leaf proper *b*, and the next four leaves *c*, *d*, *e*, and *f*, we shall be able more easily to explain what is meant by these terms. As before remarked, only the young succulent leaves can be manufactured into good tea. The leaf-bud is very soft and tender; and, of the leaves proper, the first and second are also very soft. With regard to the other leaves on the stalk, the lower one goes the harder and stiffer one finds them become, each slightly, yet appreciably, tougher than the one immediately above it. The reason of this is, of course, that the lower leaves on the branch are older than those higher up.

In fine plucking, the leaf-bud *a* and the two leaves *b* and *c* only are gathered; in medium plucking, the third leaf *d* is also taken; while in coarse plucking, the shoot is nipped off the branch sometimes below *e*, and sometimes below *f*. However many leaves are taken, it is important that the lowest plucked should be so nipped off as to leave the bud in the axil of the leaf immediately below it uninjured on the branch, as it is from it that the next flush will develop. Of course, the more leaves there are included on the flush plucked, the larger will be the yield per acre, but the quality of the made tea will be proportionately poorer.

The names distinguishing commercial varieties of tea are mostly of Chinese origin. In general they indicate a gradation of qualities from the fine and delicate product of the young leaf-bud down to that of the hard-grown leaf.

The leaves have been named as follows from the teas they are supposed to make:—



- (a) Flowery Pekoe
- (b) Orange Pekoe
- (c) Pekoe

- (d) Souchong 1st
- (e) Souchong 2nd
- (f) Congou

CUEILLETTE DU THÉ.

*Photo by A. W. A. Piltz & Co.*

PLUCKING TEA LEAF.





Of these names, Pekoe is derived from *pak-ho*, "white hairs," in allusion to the down on the epidermis of the young leaves; Souchong from *siau-chung*, meaning "small or scarce plant or sort"; and Congou from *koong-foo*, signifying "labour" or "assiduity." Twice or thrice in the day, as soon as the coolies' plucking baskets are full, the gathered leaf is carried to the factory, where, after being weighed, it is spread out to wither.

In Ceylon there is no winter, and the bushes produce new shoots all the year round; so the plucking of the leaf can be



SORTING LEAF IN THE FIELD.

made frequently. But as the bushes fall off in vitality and gradually cease to push out new shoots, the practice prevails of pruning down the bush to give it the necessary rest and to cause it to spread into more branches. Each field of tea, therefore, is pruned as it requires it; that is to say, either lightly once a year or heavily biennially. As the work is somewhat arduous and straining, male labour alone is employed upon it. A bush which has been heavily pruned consists of a little more than a bare wooden stem and branches, and looks as though it were ruined and could not recover. But in the forcing climate of the Tropics it recovers its appearance in a few months and yields again its crop with

renewed youth. The average number of tea bushes in an acre is 3,600, so the pruning cannot be effected in the careful way in which gardeners prune fruit trees, but the dexterity and rapidity with which the Tamil cooly—a born gardener—performs this delicate work is most remarkable.

The usual routine of a tea estate is much as follows:—

Shortly after daybreak the coolies are mustered to have their work for the day allotted them. A cooly muster is rather a striking sight. A large number of men, women, and children—perhaps two to three hundred in all—are drawn up in a line two deep. These are the ordinary cooly labourers on the estate. Apart from this main body is a smaller group of men which consists of kanganies, or overseers, each of whom is a sort of foreman of a gang of coolies. A careful selection of coolies is quickly made, and they are sent off, in bodies of various size and constitution, with the kanganies, to work on different fields on the estate. It is essential that a planter should know his coolies and the degree of dexterity each has in the several departments of work.

The bulk of the labourers employed on the tea estates throughout the Island are Tamils. Most of them come from Southern India, particularly from that part of the continent which extends from a few miles north of Madras to the extreme south of the eastern side of the peninsula. These Tamils also serve as coolies in the Mauritius and the West Indies, and the so-called Klings of Burmah, the Straits, and Siam are all Tamils. For their enterprise in migrating and colonizing they have been called “the Scotchmen of the East.” It is the high rate of wages offered in Ceylon, as compared with what they can earn in their native districts, that induces them to come over here. It is said that in Southern India their annual earnings per family of five do not average much more than £3. 12s., or about  $\frac{1}{2}d.$  per head per day. In Ceylon about Rs. 338, say, £21 or 500 francs, would fairly accurately represent the annual earnings of a family consisting of a father, mother, and three children.

This seems a small sum for an annual income, but, incredible as it may seem, few labouring classes in the world are better off. They are housed and doctored free on the estate, their clothing costs them little, they have ample to eat, and where there is the will there is the ability to save.

Their dwellings are called “lines.” A cooly line is a long, low, one-storey building, which consists of what is really one room, but which is divided into a number of compartments, by walls. Some forty to fifty coolies live together in a line, and, as each compartment has to hold three or four of them,

it is obvious that they have no great comfort, and that there is no such thing as privacy in their dwellings. Their food consists chiefly of rice and curry stuffs.

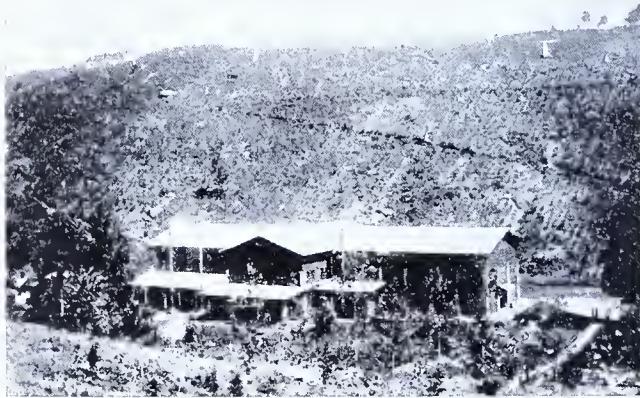
The Tamils are smaller and weaker built than are Europeans, but they are well-proportioned and graceful in shape. They have many estimable qualities,—frugality, patience, and endurance. They are simple folk with few ideas, but they are excellent agricultural labourers, docile at their work, and peaceable in their domestic lives; looking up to their "Dorai," or master, as they term the European superintendent of the estate, for the settlement of all their differences, and yet tenacious of their rights as recognized by the custom of many years.

It is well to remember that they are absolutely free labourers, engaged nominally by the month, and that a month's notice terminates their service at any time. All the legislation in Ceylon aims at their protection and well-being. They know their rights, and are ready to appeal in case of any grievance, so oppression by the masters is practically unknown. They are recruited voluntarily by fellow-employers already on estates, who go over to the Southern coast of India by the daily line of steamers to bring their friends and relations. Many settle down permanently in Ceylon, but most return to their villages to invest their savings in agricultural pursuits at home. Under European supervision—in India and Ceylon—both the cultivation and, especially, the manufacture of tea have undergone remarkable improvements, and yet the most experienced and able planter knows that his methods are far from perfect, and that with further observations and experiment they will become more exactly scientific. In China there exists what practically amounts to official prohibition of enlightened modes of cultivation and manufacture, and nothing can be more certain than that the traditional and empirical teaching of the Chinese proved a serious stumbling block to progress in the early days of tea enterprise under Western auspices. Many of the processes employed by the Chinese are quite superfluous, and several of the manual operations which bulk largely in their manufacture have with advantage been supplanted by mechanical agency. Of these may be instanced *rolling*. How much is gained in point of cleanliness by the employment of machinery in rolling becomes evident, if the effect of the operation upon the leaf is considered. Before it will receive a good twist the leaf must first be reduced to a soft, mashy state, and to do this the essential oil has to be expressed from the cells with which the leaf is dotted. In Ceylon all this is done by

machinery. In China the operation is performed by hand, and it only requires the process to be pictured to see that in it the leaf must derive a considerable amount of dirt and perspiration from the hands of the unwashed Mongolian.

The pivot of a Ceylon tea estate is the factory,—a large, light, well-ventilated building of several storeys, replete with all sorts of mechanical inventions for the manufacture of tea after the latest scientific methods.

The whole object of the teamaker is to wither, roll, ferment, and dry the leaf, and to this end it undergoes the



A TEA FACTORY.

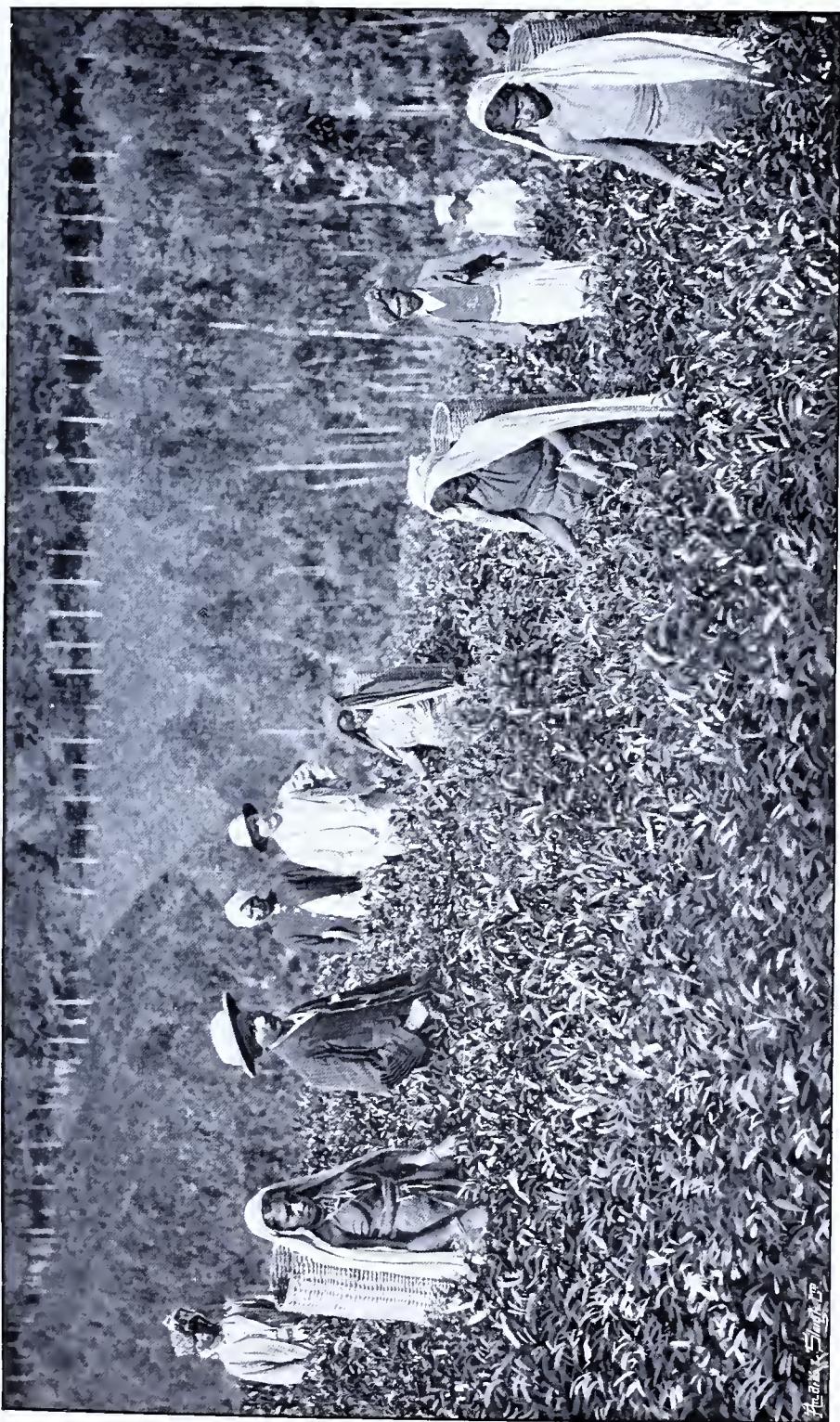
processes of *withering*, *rolling*, *fermenting*, and *firing*. On most estates the motive power used in factories for driving the various machinery is obtained from water, the site for the factory being selected mainly to secure abundance of water power. The machine constructed to utilize the water is usually a *turbine*, a motor which contains a water-wheel in miniature; it works on the same principle as a water-wheel, but the force is concentrated, the water acquiring great power in the enclosed pipe in which it is brought from a higher level.

Among its advantages over the ordinary water-wheel are these: it requires less water, occupies less space, is less liable to get out of order, and is more easily regulated and stopped. In addition to the water-wheel, or the turbine, there is generally a steam or oil engine in a well-equipped factory. It hardly does to be entirely dependent upon a water-engine, as, in case of the supply of water running short, or in the event of anything happening to the engine, the whole of the factory work would be delayed for some time.

CHAMPS DE THÉ

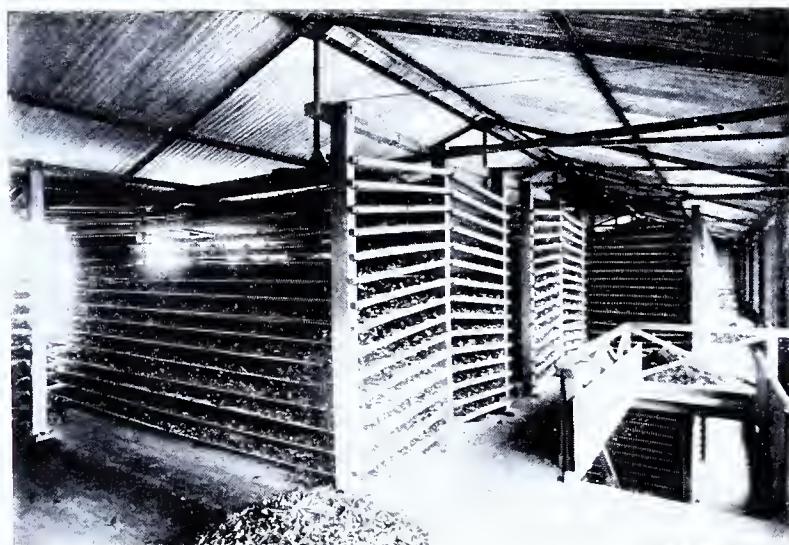
*Photo by Mr. A. W. André,*

A TEA FIELD.





As soon as the leaf arrives at the factory it is taken to the lofts above and spread thinly on tats, or shelves, to *wither*. Withering is a preliminary to rolling. The object of it is that the leaf may become soft, limp, and flaccid, so that it may be susceptible of receiving a good twist when put into the rolling machine. Tats are usually made of jute hessian or of wood or of wire, through which the air can pass freely. To wither well, leaf requires light, warmth, and a dry



WITHERING TEA LEAF.

atmosphere. In fair weather it will wither naturally in about twenty hours, but on wet or dull days it becomes necessary to employ mechanical agency, and to act upon the leaf with artificially dried and heated air. If compressed in the hand, withered leaf folds together into a clammy mass without crackling or rebound. It may be mentioned that green leaf loses about one-third of its weight in withering, and a further 40 per cent. in the several other processes through which it passes.

*Rolling* is the next operation. The machines used in it differ considerably in structure and size, but they all work on much the same principle. Our illustration gives a rolling machine. The lower of its two rolling surfaces is considerably the larger, and is a table in the centre of which is a door, which opens downwards for discharging the rolled leaf, or, as it is technically called, "the roll," into a trolley, which runs in beneath the machine. The upper rolling surface is

moved by a crank with an eccentric motion over the lower, its pressure upon which can be increased or lessened at will.

The time occupied in rolling varies of course with the nature of the leaf, but medium-plucked leaf usually takes from an hour to an hour and a quarter. Leaf is sufficiently rolled when it is well twisted. On being taken out of the machine the roll is in a mashy state, and holds together in lumps.



TEA ROLLING AND BREAKING.

It is therefore put through a *roll-breaker*, below which and attached to it is a *sifter*, which separates the finer from the coarser leaf. Immediately after breaking the roll is put into drawers at which the air can get freely, and is left to ferment or oxidize.

This process is the distinguishing feature of black (as opposed to green) tea manufacture, and upon its sufficient accomplishment depends much of the character of the tea made. In warm weather it is considerably more rapid than in cooler, but perhaps two hours is about the average time occupied in fermentation. When the roll is sufficiently fermented, it has a bright coppery colour and gives out a peculiar odour approximating to that of apples. Careful observation and considerable experience alone give the ability to pronounce when the roll is sufficiently fermented. Various modifications of flavour are produced by the management of the fermentation of the roll: a loss of tannin takes place by the conversion of part of the tannic acid into sugar. Its progress is always carefully watched, and at the point

when by the colour it is known to be sufficiently advanced it is checked by *firing*.

In nearly all factories firing is now done by a current of dried and highly heated air in one of the numerous machines that have been invented for the purpose. The heat is supplied from a wood furnace. The roll is spread thinly upon wire trays, which are pushed into the machine one after another. While inside, a current of very hot air is made to pass through the trays, and so the roll upon them



FIRING TEA.

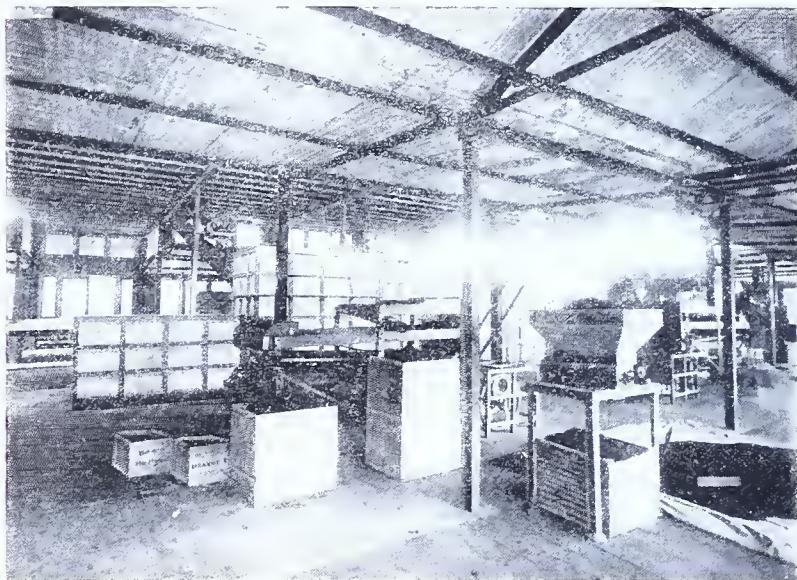
is dried and becomes tea. The roll is usually fired at a temperature of from 180° F. When, however, fermentation has been very rapid, this temperature is increased by ten degrees. The firing is finished when the tea feels perfectly dry, has a good black colour, and is so brittle that it breaks on the least attempt to bend it.

After firing the tea is weighed, and turns out to be only about twenty-five per cent. of the weight the green leaf was before withering, when brought in by the pluckers.

After firing the leaf is *sifted*, and sorted by a machine in which a number of sieves of different-sized meshes are arranged one below the other, and which have a common motion. It sometimes happens that to this branch of factory work insufficient attention is paid, and yet, comparatively trivial and unimportant as it may seem, it is in reality quite otherwise. Judicious sifting, as contrasted with the reverse, will often make a very appreciable difference in the market value of teas. The meshes of tea-sifters are made of such sizes as will yield the following commercial varieties : broken pekoe, pekoe, souchong, congue, and dust. The different

grades are put away into separate bins, and after a few days, when a sufficient quantity of each has been manufactured, they are bulked.

In bulking the same grade of tea of different days' manufacture is carefully and thoroughly mixed, so that the quality of the whole may be uniform. After bulking, the tea is again slightly fired to drive off any moisture, and packed in chests lined with lead, which are carefully soldered



TEA PACKING.

so as to exclude the air. The lids of the boxes having been nailed on, the boxes are hooped with iron, marked with the name of the estate and the grade and weight of the tea they contain, and despatched to Colombo, either for sale in the local market or for shipment to London.

The foregoing description shows how far the methods for the manufacture of tea in Ceylon and India are in advance of the primitive and unclean hand labour of China. Every year some further improvement has been made by inventions which simplify, cheapen, or improve existing methods; so that now Ceylon tea in its manufacture from the bush to the tea table may be said to be free from any objectionable process.

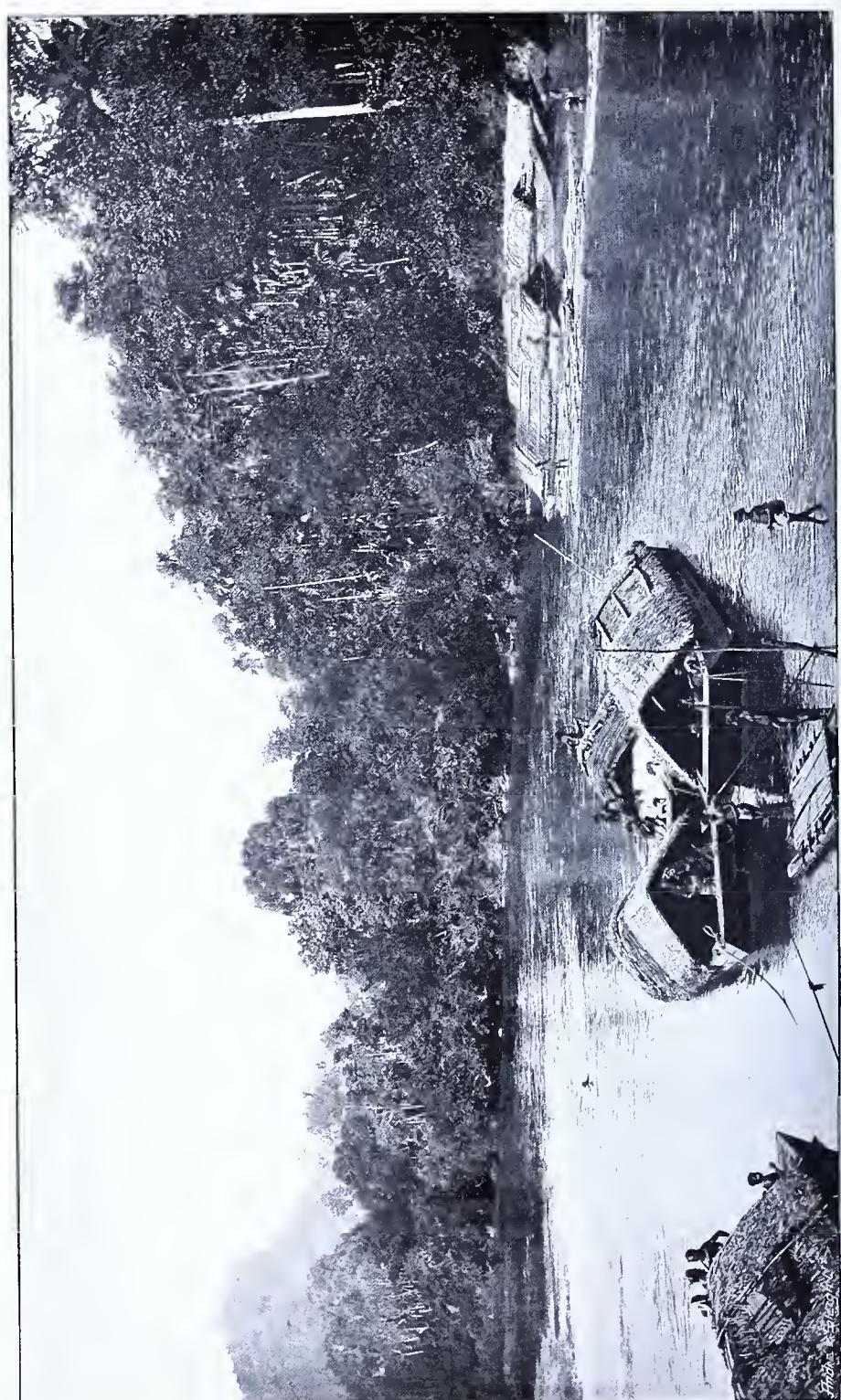
The distribution of the manufactured article over the world's markets discloses some interesting and instructive figures. The following table is compiled from the returns



TRANSPORT PAR RIVIÈRE

Photo by Mr. H. W. Cave.

RIVER TRANSPORT.



of the Ceylon Chamber of Commerce to show the shipments to various parts of the world :—

Destination.		Quantity in Pounds.
1. United Kingdom	...	96,133,833
2. Australia	...	15,126,891
3. Russia	...	2,714,003
4. America	...	2,180,188
5. China (for transhipment to America)	...	1,185,445
6. India (for transhipment to Persia)	...	1,091,559
7. Africa	...	372,242
8. Germany	...	352,252
9. Malta	...	196,852
10. France	...	100,001
11. Turkey	...	73,974
12. Singapore	...	59,867
13. Spain	...	44,650
14. Sweden	...	42,471
15. Mauritius	...	33,299
16. Holland	...	26,351
17. Austria	...	14,873
18. Belgium	...	13,590
19. Italy	...	6,750
Total		<u>119,769,071</u>

These figures are specially instructive in showing that the direct shipments follow primarily the channels from which are obtained the bulk of the imports. The bulk of Ceylon trade is with England because the manufacturers of England have paid most attention to Ceylon as a market, and have adapted their goods to the special needs of the people of Ceylon. The import trade with India in food stuffs is very large, but is returned partly in the shape of other products than tea, and largely by remittances in cash or bills. The direct interchange of goods with Australasia is large and increasing, the people of Australia and New Zealand being the largest consumers in the world *per capita* of tea. But the relations with Russia, Canada, and the United States of America are of special interest. The foregoing figures represent but a portion of the amount of tea exported to those countries, for much is transhipped from London, which is, as it always has been, the great distributing centre of the world's requirements in tea. Nevertheless, the quantity at present shipped direct has sprung up in two or three years from practically nil; and the reciprocity in trade as shown in the direct imports in Ceylon of American-made goods and Russian oil has made remarkable strides.

The important factors in stimulating direct trade with continental countries are (1) that Colombo itself has already become a large distributing centre, whence teas can be

shipped in any quantity direct to foreign markets; and (2) the ships of most of the leading nations touch at the port of Colombo and can carry tea direct to the port of destination. The actual sales in Colombo during 1898 amounted to 28,847,212lb. of tea, of which nearly 24 million pounds passed direct to ports other than those of the United Kingdom. This shows that one-fifth of the total export is carried direct to its destination; and it is inevitable that the magnificent steamers bearing the flags of France, Germany, Russia, Holland, and Austria should stay to take up cargo and discharge it at so convenient a port as Colombo.

It is worthy of consideration, where the facilities for the direct importation from continental ports are so great, that the mere requirements of the tea industry in Ceylon involve the purchase from other countries of articles so many and so various as are shown in this list: machinery (including water-wheels, turbines, and pelton-wheels, electrical motors or dynamos, steam and oil engines, ventilating fans, rollers, roll-breakers, oxidizers, driers, sorters, and packers), patent fuel, manures, paint, iron and felt roofing, timber, tea chests, tin lead, solder and soldering fluid, leather belting, hoop iron, wire nails, lamps, oil, lubricants, spanners, and agricultural tools.

The subjoined notes on the chemical composition of Ceylon tea and its dictytic value as a beverage are quoted from the official report of Mr. M. Kelway Bamber, M.R.A.C., F.C.S., who has made the chemical properties of Ceylon tea his special study:—

#### AVERAGE COMPOSITION OF CEYLON TEA.

	Per cent.					
Moisture	...	...	...	...	...	3·50
Total Ash	...	...	...	...	...	5·50
Extract	...	...	...	...	...	41·00
Insoluble	...	...	...	...	...	54·00
Theine	...	...	...	...	...	3·80

Amongst others, the extract contains the following principal constituents:—

	Per cent.					
Theine	...	...	...	...	...	1·84 to 2·2
Tannin	...	...	...	...	...	10·00 to 12·0
Boheic Acid	...	...	...	...	...	2·50 to 4·5
Pectin	...	...	...	...	...	1·80 to 2·0
Soluble Ash	...	...	...	...	...	3·00 to 3·7
Albumin	...	...	...	...	...	0·80 to 0·9

In addition to these constituents, which give to the infusion the colour and strength, there is present a certain

quantity of essential oil, to which the aroma and bouquet of Ceylon teas are mainly due.

The beneficial effects of drinking tea are due—

First, to the essential oil.

Second, to the alkaloid theine.

Third, to the tannin.

The *essential oil* exhilarates and increases the activity of the brain, and overcomes the weariness and lassitude arising from hard manual and mental labour.

It makes the high-grown Ceylon teas extremely palatable and refreshing, and is one of the chief factors which determine their value and lead to their wide consumption.

The *alkaloid "Theine"* has marked beneficial effects on the human system, because—

- (1) It acts upon the nervous system, producing an agreeable stimulating action, and removing the sensations of fatigue and drowsiness.
- (2) It makes the mind active, clear-sighted, and resistent to the depressing effects of unpleasant influences.
- (3) As taken in hot tea, it acts as a diuretic, and purifies the blood by hastening the removal of effete matters.
- (4) It strengthens the action of the heart and increases the rapidity of the pulse.
- (5) It prevents the waste and decay of the body, and is thus indirectly nutritive, as less food is required to make good the daily waste.
- (6) It removes or prevents headache and soothes the nerves.
- (7) In the old and infirm it has a special medicinal value, as it arrests decay at a period of life when sufficient food is not digested by the stomach to make up for the natural daily waste of the bodily substance. (*Prof. Johnston.*)

Teas containing the largest percentage of this "theine" are therefore the most valuable to the consumer, and this is one of the distinguishing features of Ceylon tea, which contains from  $3\frac{1}{2}$  to 4 per cent. of the alkaloid.

*The Tannin.*—The full and precise action of this constituent on the human system is not quite understood.

In moderate doses it no doubt has a mild tonic effect, but in excess it is distinctly harmful to many constitutions. It acts injuriously when taken in conjunction with meat or

other nitrogenous food, as it combines with the proteid matter to form compounds which are only digested with difficulty. Teas which are very rich in tannin should therefore be avoided.

This constituent is present in largest amount in some of the high class green teas of China, the total sometimes amounting to 27 per cent., and frequently to 18 or 20 per cent.

Tannin is more or less changed in the process of manufacture of black tea (Ceylon), being partially converted into another less astringent organic compound and sugar.

The tannin in Ceylon black tea therefore averages only 10 to 13 per cent., a portion of which moreover is not extracted when the rules for infusion are properly carried out.

This percentage compares most favourably with green teas from China and Japan, and is one reason why Ceylon teas can be consumed without deleterious effects.

*Total Extract.*—The amount of total extract is one of the chief factors in determining the value of a tea, as it is upon this that the *strength* of an infusion mainly depends. In this respect also Ceylon tea compares favourably with those of China and Japan; one pound giving a much stronger infusion, or a larger quantity of infusion of equal strength, than either a pound of ordinary China or Japan teas.

Ceylon teas are therefore most valuable to the consumer because—

- (1) They have a delicious aroma.
- (2) They contain a large percentage of the most important constituent, "theine."
- (3) They yield a large amount of extract.
- (4) The infusion contains a minimum of tannin.
- (5) They are absolutely pure and free from extraneous colouring matter, such as is largely employed in the manufacture of green teas in China and Japan.
- (6) They are perfectly clean, the system of manufacture in Ceylon reducing the handling of the leaf during the process to a minimum.
- (7) No objectionable manures are used to promote the growth of the bush, but only such as are chemically pure, and which maintain the best qualities of Ceylon tea.

Finally, the advice is tendered how to make a good cup of tea :—

First, fill your kettle with *fresh* water. Then see that it really *boils*. Next, warm your *teapot*, and put one small

CHARRETTE À BOEUFFS

Photo by W. L. H. Sheen & Co.

CART TRANSPORT





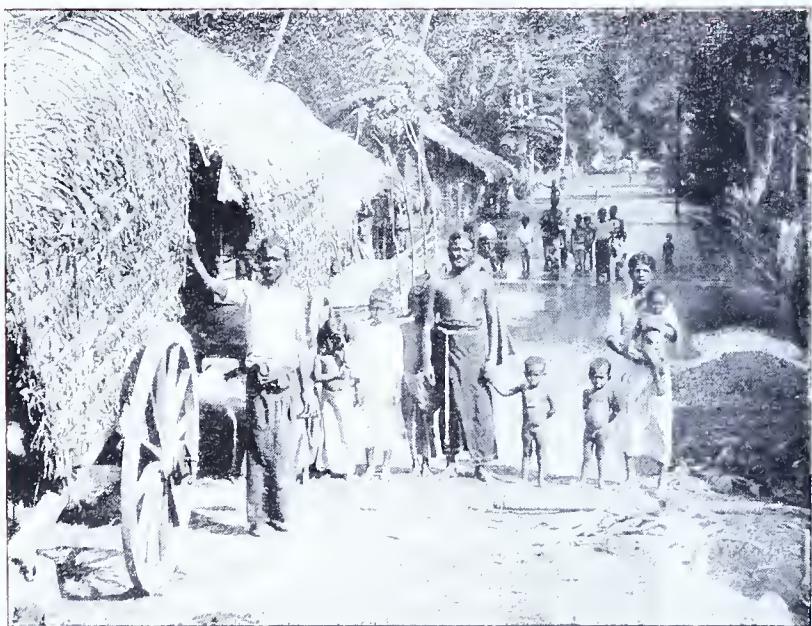
teaspoonful of tea for each cup required ; then pour on the required quantity of boiling water. Infuse for five minutes ; then pour off the tea into another teapot ready for use. Thus treated, **Ceylon Tea** will give a liquor pure, delicious, and fragrant.

Full particulars as to the cost of the purchase of tea in the Colombo or London markets ; the amount of the various charges (commission, insurance, and freight) for delivery at any port in the world, and the rate of duty on tea in all countries, can be obtained on application to Mr. J. H. Renton, the Tea Commissioner, or to Mr. W. W. Mitchell, C.M.G., the Representative of the Ceylon Chamber of Commerce, at the Office of the Ceylon Court.

[The compiler of the foregoing article desires to acknowledge his indebtedness for the materials used to Mr. J. FERGUSON, Editor of the *Ceylon Observer*, whose "Ceylon Handbook and Directory" contains all that is worth knowing of Ceylon ; to Mr. J. A. HENDERSON, from whose pamphlet on Ceylon Tea many extracts have been taken ; to Mr. M. KELWAY BAMBER, Mr. H. K. RUTHERFORD, Mr. G. THORNTON PETT, and Mr. R. VALENTINE WEBSTER.—W. E. D.]



PADDA BOATS ON THE KELANI RIVER.



A FLOOD SCENE IN COLOMBO.



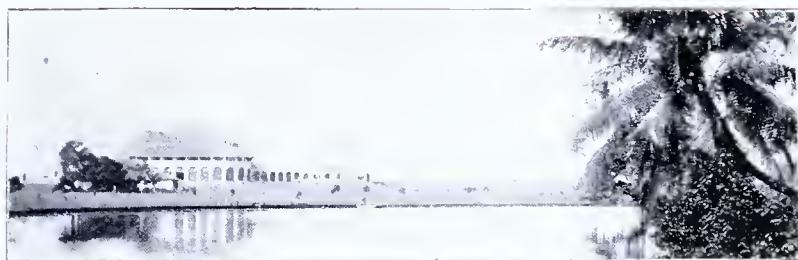
NUWARA ELIYA

Photo by W. L. H. Sheen & Co.

NUWARA ELIYA



Photo by  
W. L. H. Sheen & Co.



COLOMBO CLUB, GALLE FACE.

## CATALOGUE OF EXHIBITS.



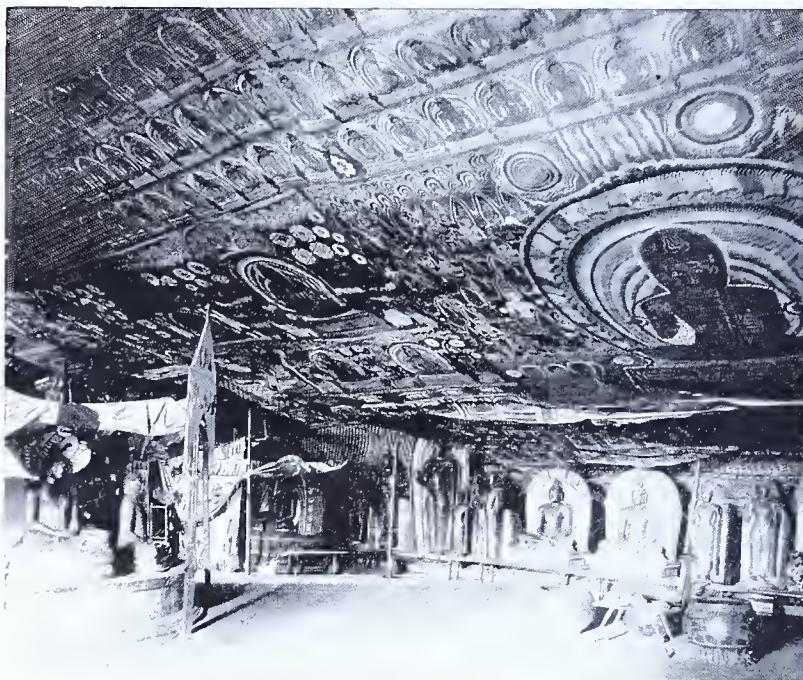
### **GROUP II.—WORKS OF ART.**

#### **Class 7.—Paintings, Drawings, and Prints.**

THIS heading includes very diverse material, such as the Kandyan paintings with which the walls are decorated—an Oriental art which stands out unique in Modern India—a large series of paintings of the country, including studies of the people and the monumental remains of the ancient capital, as well as views of the vegetation and the mountain scenery for which Ceylon is famous. There are, besides, careful botanical studies from the Peradeniya Gardens and some old pictures and coloured prints of Ceylon at the earlier parts of the century.

The Kandyan paintings form a frieze round the Court at a height of some fifteen feet from the ground, and attract attention from their bold colouring and fantastic drawing. These pictures, as is the custom with the Kandyan artists, are painted in a series to illustrate a story from beginning to end : the subject on the left hand side, as the Court is entered from the southern gateway, is a Buddhist procession, or Perahera, such as is held with great pomp and circumstance in Kandy at the time of the full moon of August. On the right is portrayed the history of the Gautama Buddha in a former life, in which the Buddha was born as a virtuous prince who, by dint of his forcible exposition of the divine doctrine (hence the title of the story, the Devidamma Jātaka), converted a demon into a devout and respectable deity. This tale has a special interest as showing the manner in which the local superstitions of the

people have been incorporated into the Buddhist story, and as accounting for the parallel worship of local tutelary deities by the side of the philosophical Buddhism. Further along the same side of the wall and along the northern end is painted the Vessantara Jātaka, the story of the last of the five hundred and fifty lives of the Buddha before he was born in the life in which he finally attained Buddhahood and Nirvāna.



INTERIOR OF BUDDHIST TEMPLE, DAMBULLA.

The ancient ruins of Anurádhapura and Polonnaruwa have formed the subject of several of the studies lent for exhibition : Adam's Peak, the stately mountain which is the bourne of pilgrims—Buddhist, Mohammedan, and Hindu, alike—is depicted from several points of view ; and there are pictures which illustrate the mountain beauties of Nuwara Eliya (the sanitarium of the hill-country) as well as the richer colouring of the tropical plains and sea-borde.

The botanical drawings exhibited near the planting cases were executed by Mr. W. de Alwis, draughtsman to the Royal Botanic Gardens, Péradeniya, one of a family noted for their artistic skill, who have produced as their joint labour an extensive series of beautiful and accurate botanical drawings of the Ceylon flora, one of the chief treasures of the gardens.

Mr. Beling, Mr. de Alwis, and Mr. Henricus are students born in the Island who have had no training beyond what is to be found in Ceylon.

#### CEYLON GOVERNMENT.

The series of Kandyan Picture Stories of which the Frieze is composed.

**Mr. W. W. BELING.**—*Oil paintings and water colours.* [For sale.]

In oils: a picture of the Colombo Harbour and three small studies.

In water colours: three small studies.

**Mrs. HARDINGE HAY CAMERON.**—*Water colours.*

1. The Sacred Bó Tree, Anurádhapura.

2. The Guard Room, Mihintalá.

3. The Queen's Pavilion, Anurádhapura.

4. The Jétawanaráma, Polonnaruwa.

5. A Native Boutique, Anurádhapura.

6. Hindu Temple, Trincomalee.

**Miss A. CHRISTIAN.**—*Water colours.*

Views of Ceylon Scenery.

#### Mr. W. DE ALWIS.

Ten coloured drawings of the principal Estate Products of Ceylon, viz.: Arabian Coffee, Liberian Coffee, Cacao, Tea, Cardamoms, Pepper, Vanilla, Nutmegs, Cloves, Cinnamon.

**Mr. E. HAMLIN.**—*Water colours.*

1. Adam's Peak with Maskeliya River, from Kintyre.

2. Nuwara Eliya, with Mount Pedro.

3. Nuwara Eliya, from Queen's Cottage.

4. Nuwara Eliya, on the Golf Links.

5, 6, 7. Sketches in brown of Nuwara Eliya Golf Links.

**Mr. R. HENRICUS.**—*Oil painting.*

A Native study.

#### Miss E. JOWITT.

Coloured design for the outside pages of the cover of this Handbook and Catalogue.

**Mr. ÆLIAN A. KING.**—*Oil paintings.*

Two views of the Lake at Kuru-négala.

**Miss B. LAYARD.**—*Water colours.* [All for sale.]

1. Old Kandy: view from the Octagon Library.

2. Sea Beach of Colombo: view from Kollupitiya looking towards the Fort.

3. Harbour and Fort, Point-de-Galle.

4. Old Banyan Tree, Kollupitiya, Colombo.

5. View from the Temple Rock at Kurunégala.

6. The Thúpáráma Dágoba, Anurádhapura.

7. The Jétawanaráma Dágoba, Anurádhapura.

8. Study in Tropical Foliage, Colombo: the Flamboyant and *Pterocarpus indicus*.

#### Miss M. LAYARD.

A painting of the flower of the Cocoanut Palm and a series of eleven drawings of Old Ceylon (out of the collection of the late Sir C. P. Layard, K.C.M.G.).

**Mr. A. E. SCOVELL.**—*Oil colours.*

1. The Thúpáráma Dágoba, Anurádhapura.

2. The Jétawanaráma Dágoba, Anurádhapura.

3. View of Adam's Peak from Maskeliya.

**Mr. PERCY STURDEE.**—*Oil colours.* [For sale.]

1. On a Tea Estate.

2. The return from the Field.

3. Sinhalese Dhoby (Washerman).

4. Sinhalese Kangani.

5. A Tamil Boy.

6. "Segapee."

7. A Tamil Girl.

**Mr. ALFRED SCOVELL.—***Oil colours.**View of Adam's Peak.*

**ST. BENEDICT'S INSTITUTE,** Colombo (the work of native pupils under the Christian Brothers) :—

*Oil paintings:*

A Tamil Woman.

A Sinhalese Mudaliyar.

*Water colours:*

Bunch of green Cocoanuts.

Lovi-lovi Fruit.

Vanilla aromatica.

Study of Ceylon Frogs.

*Etching:*

Study of Sinhalese Architecture.

Study of Ancient Architecture.

A Kandyan Headman.

Sinhalese Fruitseller.

Plan of an Elephant Kraal.

Studies of Vegetable Products:

Cinnamon. | Breadfruit.

Nutmeg. | Sago Palm,

**Mrs. TALBOT.—*Water colours.***

Four views of Ceylon Scenery.

**Class 9.—Sculpture and Models.**

Native Art has not in recent centuries found any scope in Sculpture, although Ceylon contains many wonderful colossal representations of Buddha carved out of the solid rock in ancient times. The statue of Buddha at Aukana, erected by King Dhátu Sen about A.D. 470 in commemoration of the completion of the great tank called Kalawewa (which supplies the irrigation system of Anurádhapura, the ancient capital) is carved out of the solid rock, and stands sixty-two feet in height (19 mètres). The portrayal of the Grand Teacher was the aim of all the ancient kings, and all the statues discovered in great profusion among the buried cities of ancient times treat of Buddha in conventional attitudes, either standing in the attitude of benediction or seated in contemplation or recumbent in the state of Nirvána. The art therefore never developed, and remained stereotyped for centuries.

The carvings, however, of the guardians at the gates of the palaces and temples are grotesque and often full of animation. This class of ornamentation appears to have been imported from Southern India and was probably the work of Tamil craftsmen. These ancient works are well illustrated in the collection of photographs (under Class 12), especially in the studies exhibited by the Government Archaeologist.

Of modern native art in Sculpture there is none; and the sole representations in this class are the works of artists trained in European methods and are confined to models of life size. Attention is invited to the models of a Veddah man, woman, and child, the old indigenous race of Ceylon which has hardly been reclaimed from its pristine savage state, and which is rapidly dying out among the less frequented jungles of the Island: the models were secured





*Photo by the Colombo Apothecaries' Company.*

A KANDYAN CHIEF.

CHEF KANDYEN.

by the artist in the wilds of the Bintenna. Other studies show Buddha in typical attitudes, standing and sedent, and specimens of the race-types and dress of modern Ceylon : the Kandyan chief, the Tamil headman, the Buddhist priest, and the Chetty money lender. Mrs. Josepha North's medallions of heads illustrate the type of the better class among the maritime Sinhalese.

All the exhibits in this class are the property of the Ceylon Government, but are exhibited in the names of the artists who designed and produced them.

**Mr. R. G. ANDRIESZ.** [*For sale.*]

Models of Veddah Man, Woman, and Child.

**Mrs. JOSEPHA NORTH.** [*For sale.*]

Medallions in relief showing typical profiles of a Sinhalese Man and Woman of the higher classes.

**Mr. A. E. L. ROST.** [*For sale.*]

A Sedent Buddha.	
A Standing Buddha.	
A Kandyan Chief.	
A Tamil Mudaliyár.	
A Buddhist Priest.	
A Chetty Money Lender.	
Model to scale of the Summit of Adam's Peak.	
Model of the Sacred Footprint on Adam's Peak.	

## GROUP III.—LITERATURE, SCIENCE, AND ART.

### Class 12.—Photographs.

The Ceylon Court contains a very fine collection of photographs, illustrative of the tropical and mountain scenery, of the ancient Buddhist shrines in the Ruined Cities of the interior, of the Colombo Harbour and the modern edifices of Colombo and Kandy, of the mountain sanitarium of Nuwara Eliya, and of native village life under many aspects.

A special place of honour is awarded to the enlarged portraits of His Excellency Sir West Ridgeway, the Governor of Ceylon, and of Lady Ridgeway. A magnificent study in green carbon is shown of the Colombo Breakwater, under the shelter of which a large fleet of steamers is anchored in absolute security despite the violence of the South-West monsoon. A life-like representation of the Kandy Perahera, the great Buddhist festival held in August, will repay close inspection. The remarkable natural phenomenon of the shadow cast at sunrise from the summit of Adam's Peak has been wonderfully caught by one of the artists who exhibits. Special interest attaches to the collection prepared by Mr. H. C. P. Bell, the Government Archæologist, from the grand remains of ancient Sinhalese times at Anurádhapura (found-ed 505 B.C.), Polonnaruwa (A.D. 769), and Sigiriya (A.D. 478).

The Tea Industry is well illustrated in the series of pictures showing the whole progress of the cultivation of tea, from the plucking of the leaf through the various phases of manufacture until it is packed ready for European consumption : a study of these pictures, both in the Ceylon Court itself and in the Tea House in the grounds adjoining the Court, shows to what a pitch of scientific care the preparation of Ceylon tea has arrived and—what perhaps appeals as much to the taste of Europeans—what a high standard of scrupulous cleanliness is insisted on throughout all the processes of preparation, affording a most marked contrast to the “hand processes” still in vogue in the China tea gardens.

Some enlarged studies of the types of the Sinhalese, male and female, grouped in the Ethnological Section, illustrate the high standard of development, both physical and cranio-logical, of this branch of the Aryan race.

The standard of Art attained by photographic artists in Ceylon may be gathered from the exhibits shown by Messrs. Andrée, Platé, and Skeen, by the Colombo Apothecaries' Company, and by Mr. H. W. Cave. The full-page illustrations in this Handbook and Catalogue (a list of which appears on page v.) have been gratuitously contributed by these artists. The half-tone process blocks for the small illustrations introduced into the text have been prepared by Mr. C. H. Kerr, the Manager of Messrs. W. L. H. Skeen & Co.

In the purely Amateur Section, the studies by Mr. Bosanquet, Mr. Bois, Mr. Lassell, and Mr. Vere Owen are worthy of note.

Mr. A. W. ANDREE, Hope-toun Studio, Colombo. [For sale.]

*Bromide enlargements.*  
Finished in black and white :  
“The Forgotten Chord.”  
Two Child studies.  
Portrait of a Lady.

Finished in water colours :  
A Portrait.  
Portrait of a Ceylon Lady.  
“Cherry Ripe.”

Finished in oil colours :  
Tamil Lady.  
Sinhalese Lady.

*Platinotypes.*

Girl in Rickshaw.  
Portrait group.  
Two frames of Ceylon views.  
Enlargement from instantaneous photograph : “Fox Terriers.”

Mr. H. C. P. BELL, C.C.S., Govt. Archæologist. [For sale.]

Views of the Ancient Ruined Cities of Ceylon :—

Anurádhapura.  
Polonnaruwa.  
The Rock Fortress of Sígiriya.

Mr. H. W. CAVE, M.A., Amen Corner, Fort, Colombo. [For sale.]

Colombo Breakwater, in green carbon, 28 in. by 36 in.

Afterglow and Orient Sea : a pair in green carbon, 38 in. by 50 in.

The Shadow of Adam's Peak : in green carbon, 22 in. by 26 in.

Twenty-one miniatures of Colombo Breakwater : in one frame, 18 in. by 34 in.

Platinotypes : 24 in. by 18 in., framed :— *Antiquities.*

The Sacred Bó Tree.

The Aluvihare.

The Brazen Palace.

The Isurumuniya Temple.

*Scenery.*

View from Kadugannáwa Pass.  
The Galle Road, Colombo.

**THE COLOMBO APOTHECARIES' Co., Ltd., Colombo and Kandy.** [For sale.]

Enlarged photographs, 19 in. by 16 in., in frames 30 in. by 23½ in. :—

Hindu Temple, Colombo.

Maligáwa Temple, Kandy.

Pettah Street scene, Colombo.

Colpetty Street scene, Colombo.

Photographs, 9½ in. by 9½ in., in frames 18 in. by 18 in. :—

Kandyan Chief.

Snake Charmer.

Sinhalese Ayah.

Tamil Ayah.

Sensation Rock.

Sensation Rock with Train.

Panorama photographs, 44 in. by 9 in., in frames 53½ in. by 19 in. :—

Kandy from Upper Lake Road.

Kandy from Lady Horton's Walk.

Panorama photograph, 32½ in. by 8 in., in frame 42 in. by 18 in. :—

Kandy, from Western Redoubt.

Enlarged photograph, size in frame 60 in. by 48 in. :—

The Perahera at Kandy (Buddhist annual procession).

Series of photographs illustrating the Cultivation of Tea.

**Mr. A. W. A. PLATE, Bristol Studios, Colombo and Nuwara Eliya.** [For sale.]

*Enlargements.*

Size 6 ft. by 5 ft.: half length

life-size bromide enlargements of H. E. the Right Hon. Sir West Ridgeway, G.C.M.G., K.C.B., K.C.S.I., the Governor of Ceylon, and of Lady Ridgeway. [Not for sale.]

Size 5 ft. by 4 ft.: four studies of Native types.

Size 4 ft. by 3 ft.: a group of Veddahs and a Street scene in Colombo.

Two frames containing large portraits, direct takings, printed in platinotype.

A panorama of Nuwara Eliya.

Two views of Kandy.

Two frames containing a series of small portraits in platinotype.

Series of photographs illustrating the Cultivation of Tea.

**Mr. W. L. H. SKEEN, Colombo and Kandy.** [For sale.]

Enlargements, size 30 in. by 22 in. :—

Three Views of Kandy.

Banyan Tree.

View of Galle.

View of Maturata.

View of Ratnapura.

Dehiwala Canal.

Polonnaruwa.

Laxapanagala Waterfall.

In frames in sets of six each :—

Six types of Men.

Six types of Women.

Six of Veddahs.

Six of Elephants.

Six of Ruins.

Six of Foliage.

Twelve of Scenery.

Series of photographs illustrating the Cultivation of Tea.

Series of photographs illustrating the Plumbago Industry.

### Amateur Section.

**Mr. F. W. BOIS, Vauxhall Cottage, Colombo, Ceylon.**

**Mr. W. D. BOSANQUET, Holmwood, Agrapatana, Ceylon.**

**Mr. J. VERE H. OWEN, Maturata, Ceylon.**

**Mr. E. LASSELL, Bodyattenna, Rakwana, Ceylon.**

A frame (36 in. by 32 in.) containing nine photographs illustrating machinery and operations of the Ceylon Prospecting Syndicate, Ltd., at Rakwana in the Southern Province.

### Class 13.—Books.

Ceylon possesses an admirably equipped and appointed Government Printing Department, presided over by Mr. G. J. A. Skeen, under whose care this Handbook and Catalogue has been compiled and prepared for the press. A selection of the Official Publications issued from the Government Printing Press are exhibited as given in detail below ; they contain all particulars regarding the Administration of Ceylon, and include copies of the publications issued under the direction of the Department for Public Instruction for the use of English, Anglo-Vernacular, and Vernacular Government Schools. All these publications are accessible for reference at the Enquiry Office in the Ceylon Court.

The Daily Papers published in Ceylon, viz., the *Ceylon Observer*, the *Times of Ceylon*, the *Ceylon Examiner*, the *Ceylon Independent*, and the *Ceylon Standard*, are also accessible to visitors.

Publications issued from the *Ceylon Observer* Press are also exhibited in the Ceylon Court, and a list of them is subjoined. A monumental work of reference, "Ferguson's Ceylon Handbook and Directory," edition of 1898-99, is worthy of special attention as a compendium of all useful information bearing on Ceylon affairs.

Publications issued from the *Times of Ceylon* Press also bear testimony to the energy and resourcefulness of the Press in furthering all the material interests of Ceylon industries and trade.

The Press of Ceylon has hitherto confined its scope to the production of daily journals and the publication of useful handbooks bearing upon the needs of the Ceylon public. Books of general interest or of special artistic merit have still to be prepared in Europe. Of works of art published in Europe and exhibited in the Ceylon Court, special attention is invited to the collection shown by Mr. H. W. Cave, M.A., whose volumes entitled "Picturesque Ceylon" and "The Ruined Cities of Ceylon" have achieved well-deserved artistic and literary success. A copy of the latter work is exhibited, which has been bound in Ceylon in crocodile leather, mounted in silver with corners, clasps, and centre engraved by Sinhalese workmen.

Other works of artistic and scientific interest are the "Lepidoptera of Ceylon" by Mr. G. Moore, F.Z.S.; the "Flora of Ceylon" by the late Dr. Trimen, F.R.S., lately Director of the Royal Botanic Gardens, Pérádeniya; and a charmingly

artistic and accurate account of a visit to Ceylon by Mons. Emile Bruyas, entitled "Deux Mois à Ceylan."

**The GOVERNMENT PRINTER (Mr. G. J. A. Skeen).**

1. Ceylon Government Gazette (a specimen number).
2. Ceylon Blue Book for 1898.
3. Ceylon Administration Reports for 1898.
4. Ceylon Sessional Papers, 1898-99.
5. Ceylon Civil List, 1900.
6. Ceylon Post Office List, 1900.
7. Report on the Census of Ceylon, 1891 (three volumes).
8. Register of Books printed in Ceylon from 1885 to 1899.
9. The Legislative Enactments of Ceylon (four volumes).
10. Supreme Court Circulars (nine volumes).
11. New Law Reports (three volumes).
12. Gazetteer of the Central Province, by the Hon. Mr. A. C. Lawrie, Senior Puisne Justice (two volumes).
13. Manual of the Mannar District.
14. Do. Nuwara Eliya District.
15. Do. Vanni District.
16. Do. Province of Uva.
17. Do. North-Central Province.
18. Itinerary of Ceylon Roads (two volumes).
19. Governors' Addresses to the Legislative Council (four volumes).
20. Headman's Act Book (English).
21. Do. do. (Sinhalese).
22. Glossary of Native, Foreign, and Anglicized Words occurring in Official Correspondence.
23. Handbook to the Royal Botanic Gardens.
24. Guide to Colombo, by G. J. A. Skeen (illustrated).
25. Pharmacopœia of Ceylon Hospitals.
26. The Kitul Palm, by T. B. Pohath-Kehelpannala.
27. A complete set in 24 volumes of the Text Books in use at the Sinhalese Schools under the Department of Public Instruction.
28. The Mahawansa : the Court Chronicle of the Sinhalese Kings from B.C. 543 to A.D. 1815 ; an account which is written in a dramatic style and has, besides, considerable historical and chronological interest.—(1) the Pali Text; (2) an English translation; (3) a Sinhalese translation; (4) the Tika or Commentary on the Mahawansa.
29. The Rajawaliya, a History of Ceylon in Sinhalese.
30. Do. do. an English translation.
31. Mukhamatta Dipaniya, a Pali Tika (or Commentary) on the Kaechcháyana.
32. Grammar of the Sinhalese Language, by Mudaliyar A. Mendis Gunasekara.
33. Panchika Pradipaya, a Pali Grammar.
34. Mahasadda Niti, a Pali Grammar.
35. English-Sinhalese Dictionary, by Rev. C. Carter.
36. Abhidhanappadipika, a Dictionary, by W. Subhanti Théro (two vols.).
37. The Book of Common Prayer in Sinhalese.
38. D'Alwis's Catalogue of Sanskrit, Pali, and Sinhalese Works.
39. Ceylon Sheet Almanac for 1900.

The "CEYLON OBSERVER" PRESS (Messrs. A. M. & J. Ferguson).

1. Ceylon Handbook and Directory, 1898-99.
2. The Tropical Agriculturist (complete set).

3. All about Aloe and Ramie Fibres.
4. All about the Areca Palm.
5. Cacao Planting in Ceylon, by J. H. Barber.
6. Notes on Cardamom Cultivation, by T. C. Owen.
7. Cinehona Planter's Manual, by T. C. Owen.
8. Cocoanut Planter's Manual.
9. Coffee Planter's Manual.
10. All about Indiarubber.
11. Palmyra Palm, by W. Ferguson.
12. All about Spices (Pepper, Nutmegs, Cloves, Ginger, Vanilla, Pimento, Cinnamon, &c.).
13. Tea Cultivation in Ceylon.
14. All about Tobacco Cultivation.
15. Ceylon Manual of Chemical Analyses, by M. Cochran, F.C.S.
16. Ceylon Planter's Vade Mecum.
17. Teamaker's and Factory Guide.
18. Mauuring of Tea Estates.
19. Economy of Labour on Tea Estates.
20. Plucking, Pruning, and Preparation of Tea.
21. Estate Buildings (Prize Essay), by Messrs. Ballardie and Owen.
22. The "Planting Molesworth," or the Planter's Note Book.
23. Ceylon in 1837-46 : a Lecture by the late A. M. Ferguson, C.M.G.
24. Ceylon in 1847-56 : a Lecture by the late A. M. Ferguson, C.M.G.
25. Ceylon in 1899 : Review of Three Years' Administration by Governor Sir West Ridgeway.
26. Gold, Gems, and Pearls in Ceylon, by John Ferguson.
27. Visitor's Guide to Kandy and Nuwara Eliya, by S. M. Burrows, C.C.S.
28. The Buried Cities of Ceylon : a Guide, by S. M. Burrows, C.C.S.
29. Handbook to Kurunégala and its Neighbourhood, by F. H. Modder.
30. The Province of Uva, with Maps, by J. Ferguson.
31. Ceylon Hansard, Session 1897-98.
32. Summary of Information regarding Ceylon.

**The "TIMES OF CEYLON,"  
Messrs. Capper & Sons.**

Rutherford's Tea Planter's Note Book.  
Petts' Teamaker's Handbook.  
Old Ceylon, by John Capper.  
Two "Sunny Ceylon" Art Supplements (44 in. by 35 in.), framed.

**Mr. H. W. CAVE, M.A.**  
Picturesque Ceylon, in three volumes.  
The Ruined Cities of Ceylon.  
Ceylon and its Great Tea Industry.

**Mons. EMILE BRUYAS.**

Deux Mois à Ceylan.

**T. B. YATAWARA, Ratematayaya.**

The Ummagga Játaka, translated into English.

**CEYLON CHAMBER OF COMMERCE.**

Ceylon Directory, 1898-99.  
Ceylon Blue Book, 1897-98.  
Ceylon Administration Reports, 1897.  
Ceylon Sessional Papers, 1897-98.

**Palm Leaf Manuscripts. (Buddhist Books, &c.)**

Typical specimens of palm leaf books, commonly known as Ola Manuscripts, have been specially collected for this Exhibition. The collection contains a copy of one work out of each of the Three Pitakas—the canon of the Buddhist Scriptures—besides examples of three Historical works, a Religious work, a Sanskrit Grammatical work, a Pali



*Photo by A. W. A. Platé & Co.*

THE HIGH PRIEST OF ADAM'S  
PEAK

LE GRAND PRÊTRE DU TEMPLE  
BOUDDHISTE AU SOMMÉT DU PIC  
D'ADAM



Grammatical work, a Poetical work, a Medical work, and an Elu Glossary.

The native books or olas are of great interest and historical value. Much of the literature of Ceylon—which is of the remotest antiquity and dates several centuries before the Christian era—is still enshrined in ola manuscripts.

The finest specimens of ancient ola books in Ceylon are to be obtained at the *pansalas* or Buddhist monasteries. Every *pansala* of importance has attached to it a library, and in ancient times the library was a valued treasure of every Buddhist monastery.

Several ola manuscripts have been printed and translated, chief amongst which is the well-known, valuable historical Pali work “The Mahawansa” (‘The Genealogy of the Great’) translated into English by the late George Turnour of the Ceylon Civil Service and L. C. Wijesinhe, Mudaliyar. The Mahawansa is a metrical chronicle containing a dynastic history of the Island for twenty-three centuries, from 543 B.C. to A.D. 1815. The English translation can be seen at the Ceylon Court. The chief interest in Sinhalese Buddhist literature is that the Island was the home of Southern Buddhism. It is noteworthy that the entire Tipitaka was committed to writing for the first time in Ceylon (A.D. 89), and many of the commentaries thereon were also written in Ceylon. Notwithstanding four attempts by Tamil invaders and Sinhalese kings to destroy the sacred books of the Buddhist creed, there is still a large number of them extant.

It is interesting to know how olas are prepared and inscribed. The following lucid description from Sir Emerson Tennent’s History of Ceylon will prove of interest :—

“ The books of the Sinhalese are formed to-day, as they have been for ages past, of olas, or strips taken from the young leaves of the talipot or palmyra palm cut before they have acquired the dark shade and strong texture which belong to the full-grown frond. After undergoing a process (one stage of which consists in steeping them in hot water and sometimes in milk to preserve their flexibility), they are submitted to pressure to render their surface uniformly smooth. They are cut into strips of two or three inches in breadth and from one to three feet long. These are pierced with two holes, one near each end, through which a cord is passed, so as to secure them between two wooden covers, lacquered and ornamented with coloured devices. The leaves thus strung together and secured form a book.

“ On these palm leaves the custom is to write with an iron stile held nearly upright and steadied by a nick cut to receive it in the thumb nail of the left hand. The stile is sometimes richly ornamented, shaped like an arrow, and inlaid with gold, one blade of the feather serving as a knife to trim the leaf preparatory to writing. The case is sometimes made of carved ivory bound with hoops of filagreed silver.

“ The furrow made by the pressure of the stile is rendered visible by

the application of charcoal ground with fragrant oil, to the odour of which the natives ascribe the remarkable state of preservation in which their most sacred books are found, its aromatic properties securing the leaves from destruction by white ants and other insects."

Subjoined is a Descriptive Catalogue of the manuscripts in the Exhibition, all of which are for sale. The boards represent the various styles used in the Island for enclosing ola leaves. In some of the old temples and private libraries the boards are highly ornamented and worked in ivory and embossed in gold and silver enriched with precious stones.

#### CEYLON GOVERNMENT.

1. PÁRÁJIKÁ : A book of the Vinaya Pitaka, one of the great divisions of the Tipitaka, the canon of the Buddhist Scriptures, which treats of the Laws of the Buddhist Priesthood. [For sale.]

2. BUDDHAVANSA : A book of the Khudaka Nikáya, one of the five great sections or books into which Sutta or Suttánta Pitaka is divided. The Sutta Pitaka treats of the "Miscellaneous Discourses of Buddha" and is one of the great divisions of the Tipitaka. [For sale.]

3. PUGGALAPĀÑNATTIPAKARA-NA : A book of the Abhidhamma Pitaka, which is one of the great divisions of the Tipitaka and treats of the Metaphysics of Buddhism. [For sale.]

4. SÍMÁVISODHANI : A religious work by Ságaramati Thera of Burma on Símá, or consecrated boundaries for the performance of ecclesiastical rites. [For sale.]

5. RÁJÁVALI : A historical work supposed to have been written by different persons at various periods, treating of the History of Ceylon from B.C. 543 to the reign of Rájasingha II, A.D. 1631-1684. This is the only historical work yet discovered which gives an account of the Chinese invasion of Ceylon in the 15th century A.D. Written in Sinhalese prose. [For sale.]

6. SÁDHU CHARITODAYA : A historical work by Samedha Thera, of Cútaggáma, composed at the request of Sabhápati Gajabáhu, son of Senápati Vijaya, consisting of a selection of stories of good men who obtained merit by worshipping

and making offerings to Buddha, Cetiyas, Relics, &c. Written in Páli verse. [For sale.]

7. SÁSANAVANSA DÍPO : A modern (A.B. 2423) work on the history of the Buddhist Church by Áchariya Vimalására Tissa Thera, of Ambagahápiṭiya Vihára, Welitara. Written in Páli verse. [For sale.]

8. KÁTANTRA YÁKHYÁNAYA : An exposition of the Sútra or condensed rules of the Kátantra, a Standard Grammar of the Sanskrit language by Durgasigha. [For sale.]

9. BÁLÁVATARA SANNE : A Sinhalese version of Bálavatara, the most popular Páli Grammar in Ceylon for beginners. Bálavatara is a compendious Páli Grammar on the system of Kaccáyana. [For sale.]

10. MAYÚRASANDÉSAYA ('Peacock's Message') : This is a message sent from Gaṅgásíripura (Gampola) to the god Vishnu at Devinuvara (Dondara) in the reign of Bhuvaneka Báhu of Gaṅgásíripura. The poet invokes blessing on Alagakkónára, his army (who fought against the Tamil king Arya Chakravarti of Jaffna), on Dharmakitti Thera, and others who assisted Alagakkónára in correcting the abuses of the Buddhist establishment at that period. This is probably the oldest Sandésa or messenger poem now extant in Ceylon. [For sale.]

11. HASTIYOGASATAKAYA : A medical treatise on Elephants; a verbatim translation into Sinhalese from Sanskrit. [For sale.]

12. ELU AKÁRÁDIYA : An alphabetical glossary of Sinhalese words. [For sale.]

## The High Priest W. SUBHUTI.

1. MAMAKAPPAKARANA : One of the eight books of Abhidharma, treating on Thoughts (Metaphysics). [Rs. 100.]

2. PARAPHRASE OF VISSUDDHI MARGGAYA (in two volumes) : Compendium of the whole Tipitaka by Buddhaghosa (which includes all the Doctrines of Buddha). [Rs. 300.]

3. KAMMAVACHA (BURMESE) : Book on Upasampada Ordination. Rules the Priests have to repeat while performing the Upasampada ceremony. [Rs. 120.]

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## Class 14.—Maps.

The Cartography of Ceylon is defective. But the defect is now being remedied through the initiative of Sir West Ridgeway, the present Governor of Ceylon, under whose auspices the Surveyor-General has commenced a systematic cadastral and topographical survey of the whole of Ceylon. Meanwhile the maps shown in the Court are useful for general reference only.

The two maps attached to this Handbook and Catalogue have been produced by the Surveyor-General's Department.

## CEYLON GOVERNMENT.

Four Maps prepared in the Office of the Surveyor-General, showing—

1. Population and Religions.
2. Rainfall, 6 ft. 8 in. by 8 ft. 9 in.
3. Planting Districts, 7 ft. by 6 ft. 10 in.
4. Portion of the Mountain Region of the Interior, 5 ft. 1 in. by 5 ft. 4 in.

Four Ancient Maps of Ceylon.

## ST. BENEDICT'S INSTITUTE.

A series of etched Maps of Ceylon, with etched borders illustrating the Governors of Ceylon, and the Birds, Beasts, Butterflies, Snakes, and Insects of Ceylon. [For sale.]

These skilfully executed works of art have been produced by native scholars at a College in Colombo under the direction of the Christian Brothers.

## MESSRS. COODE, SON, &amp; MATTHEWS.

Plan (and Model) of the Colombo Harbour.

The South-West Breakwater, designed by the late Sir John Coode, K.C.M.G., was commenced in 1875 and was completed in 1885, converting an open roadstead into a secure harbour.

Further works projected and under execution include a Northern Arm, a North-West Breakwater, the reclamation of

26 acres on the east side of the harbour, a large Graving Dock, a Patent Slip, and the deepening of a large area of the Harbour to a depth of 40 feet (over 12 mètres). The total expenditure incurred on the execution of these works to the end of 1899 amounts to twenty million rupees (32,000,000 francs). For fuller particulars see pages 29 and 30 of this Handbook. A remarkable photographic study in green carbon shows the sea breaking over the original Breakwater in the South-West monsoon, the height of the crest of the breaking wave being 180 feet (55 mètres). The full-page illustration which faces this page is executed from another picture by Mr. Cave, who has made a study of these remarkable wave effects.

Messrs. A. M. & J. FERGUSON, "CEYLON OBSERVER" PRESS.

Map of Ceylon.

Map of Estates (Tea, Coffee, and Cacao), compiled expressly for the publishers, containing the names of over 1,500 estates.

### **Class 15.—Coins. Stamps.**

The coin collection exhibited is lent by Mr. E. Booth of Colombo, who has made a study of the Numismatics of Ceylon. A descriptive list of these coins can be shown to students.

An extraordinary variety of coins has been current in Ceylon in different ages. The list covers "Buddhist" coins, oblong and circular; coins of Southern India, mostly Pandyan and Cholian; Roman 'oboli' of the late Empire; Sinhalese massas (gold, silver, and copper); and silver larins shaped like a fish hook; Venetian sequins; Portuguese xeraphins; Dutch (V. O. C.) ducataats in gold, ducatons and guilders in silver, and stuivers and duits in copper; British rixdollars, stuivers, fanams, and rupees in silver, and stuivers and cents in copper.

Roman coins of the later Roman Emperors and of certain of the Byzantine Emperors are found, though of rare occurrence, throughout Ceylon. Arabic coins and coins of India, especially those of the Cholian kings of South India, are fairly common.

The coins issued by the Sinhalese kings present perhaps the crudest attempts at portrayal of the human figure known in Numismatology: the copper coins are fairly common, though gold and silver specimens are rare. Those most usually found are "massa" coins bearing the name of Sri Vijaya Bahu

(A.D. 1065-1120); Sri Parakrama Bahu (A.D. 1164-1197); Sabasa Malla (A.D. 1200-1202); Dharmasoka Deva (A.D. 1208-1209); Sri Raja Lilawati, a queen (A.D. 1209-1211); Bhuvanaika Bahu (A.D. 1277-1288). Rarer coins are the Lankesvara, the "lion" coin, and the half massa.

Portuguese and Venetian coins were current A.D. 1518-1658, during the Portuguese supremacy, and for many years after.

Dutch coins were issued by the States of Holland, Zeeland, West Friesland, Utrecht, and Guelderland: each issue bears the arms of the State which had the privilege of minting it. There are years in which each State exercised the privilege. The dates range from 1726 to 1806, but the issues from 1770 to 1779 are very rare.

The British coins date from 1798, and the earlier issues are quaint and diverse.

The leading living authorities on Ceylon coins are Professor Rhys Davids and Mr. H. C. P. Bell, the Government Archaeologist. The article by the former in "Numismata Orientalia" treats the subject thoroughly. The special authority on the Dutch issues is De Munten van der Nederlandsche Indie (van der Chys).

### **Stamps.**

The attempt to place on exhibition a representative collection of the revenue, judicial, telegraph, and postal stamps of Ceylon from the earliest issues has been abandoned in view of the great value at present attached to specimens of the older issues and the deterioration to which rare stamps are liable from exposure in a strong light. The best collections are held in Europe and are very valuable, some issues of 1857, 1860, 1861, and 1863 being procurable only at fancy prices.

The earliest issues, in sterling values, range from 1857 to 1868, the earliest perforated issues dating from 1861. In 1872, when the coinage was altered to rupees and cents of a rupee, the denomination of the stamps was also changed. Since then the issues have constantly varied. The rates now ruling are 2 cents (3 centimes) for newspapers, printed matter, and "district" letters; 5 cents (8 centimes) for internal postage; 6 cents (10 centimes) for letters almost throughout the British Empire; and 15 cents (24 centimes) for letters to foreign countries.

The current issues of postage stamps represent the following values: cents 2, 3, 4, 5, 6, 8, 12, 15, 25, 28, 30, 75, Re. 1·12, Re. 1·25, Rs. 2·25, Rs. 2·50.

A collection of the current issues is exhibited, together with specimens of news wrappers, post and letter cards, stamped envelopes, &c., issued by the local Government Printing Department.

**THE GOVERNMENT PRINTER (Mr. G. J. A. Skeen).**

Specimens of Post Cards, Letter Cards, Stamped Envelopes, Printed Matter Wrappers, and Telegraph Stamps, printed at the Government Printing Office, Colombo.

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**Class 17.—Musical Instruments.**

The musical instruments exhibited comprise nearly all which constitute a Sinhalese band. They are the tom-tom, kettledrum, tambourine, and the ivory flute, or rather horn. The rabana, of which there is a great variety in form and size, is made with a wooden rim, over which is stretched a goat or sheep skin, well prepared for the purpose. This simple instrument is played by beating upon it with the fingers, being struck in the centre or round the edge according to requirement ; when one of the larger of these is played upon by a number of women and children seated round it, the sounds emitted are by no means unpleasant, especially when heard at a short distance. As a rule, the volume of sound is of far more importance in Sinhalese music than melody, and one has but to stand near a Buddhist temple on a great festival day within sound of the shrieking pipe, the resonant drum, and the sounding tambourine, to become thoroughly alive to the fact. It is evident from a reference to old Sinhalese chronicles and ancient paintings and sculptures that the musical instruments in use at the present time are in every respect similar to those employed a thousand years ago. The chronicles of Ceylon mention how, at the early date 161 B.C., the army of king Dutthagámini marched to the music of sixty-four kinds of drums, which made a sound like that of thunder ; the echoes of these many drums were supplemented by shrieking blasts from huge chank shells. It does not appear, however, that in those early days there were any flutes or other wind instruments, though the use of a harp is mentioned in one passage referring to the period 161 B.C.

**CEYLON GOVERNMENT.**

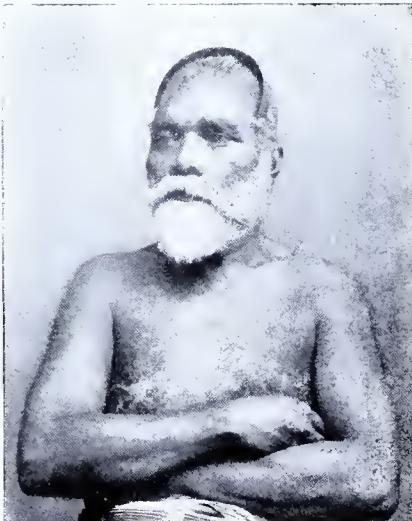
Collection prepared by Mr. Gerard A. Joseph, Librarian of the Colombo Museum.	Specimens purchased from the Kandy Art Association.
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Collection prepared by the Assis- tant Government Agent, Mátalé.	Specimens purchased from Mr. H. Gunasckera.
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**GROUP VII.—AGRICULTURE.****Class 35.— Implements used in Rural Cultivation.**

The exhibits under this head are those in common use by native agriculturists. Not only are they the implements of the Sinhalese cultivators of the present time, but they represent the unchanged habits of the people in all that relates to agriculture. The Sinhalese plough of to-day is a counterpart of the implement used two thousand years ago, and may be found in daily use by the husbandmen of Lower India. Those who may be disposed to regard an implement so simple and small as a poor remnant of barbarism will do well to remember the nature of the work for which it is intended, and that it has for thousands of years performed its part in the husbandry of the East. Designed only to operate on land subject to repeated flooding from a water supply more or less abundant, the rude and fragile implement is not ill adapted to the work it has to perform, and to the diminutive cattle by which it is drawn. So long as the available water supply is ample for the saturation and softening of the rice fields, the plough of antiquity serves its purpose sufficiently; but in seasons of drought, when the clouds refuse their aid, when rivers become mere streams, and the streams are mere sandy gullies—when the sky is as brass and the earth as iron—then the poor village implement is of no avail, the starving cattle are powerless, and the husbandman abandons himself to despair.

Of late years Western intelligence has come to the aid of Eastern indifference with light sharp ploughs, costing but a few rupees, and capable of being worked by a pair of ordinary country cattle. These ploughs have been tried by native cultivators in the Western and North-Western Provinces of the Island, and apparently with success, having turned up stiff land in half the time required with the



A VILLAGE ELDER.

ordinary plough. But much time and trouble will be needed to overcome the deep-seated prejudice of Orientals against innovations.

**MAMOTIES, CATTIES, AND AXES.**—Whilst the plough is home made, agricultural tools are in most instances imported from Europe. A generation ago this was not the case. At that time the village blacksmith plied his calling as busily as ever did his confrère in old England, and the tools he provided for his fellows were as excellent in quality as they were solid and durable. A well-made cattie, such as cinnamon peelers delight to handle in crop time, is a very perfect tool, and was for many years without a competitor among the many importations from Birmingham and Sheffield. But British manufacturers learnt the quality that was required, and eventually supplied it at a lower price than that at which the village tool could be produced. The importation of English tools into Ceylon has, during the last thirty years, assumed large proportions, the greater portion, however, being for use by Indian coolies on European estates.

#### **CEYLON GOVERNMENT.** From Kegalla and Jaffna.

Collection of Village Implements used in Husbandry.

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### **Class 36.—Vegetable Food Products.**

#### **(a) Paddy and Rice (*Oryza sativa*).**

This grain forms the food of some hundreds of millions of people in the tropical and sub-tropical countries which are its proper home. It is easily digested, but is not so nutritious as wheat or maize ; but it can be grown where those could not be cultivated, provided there be a sufficient supply of water for its irrigation. The amount of water required for this purpose varies in different localities, whilst there are descriptions of the grain known as hill or dry paddy, which can be cultivated on hill sides without the use of water ; but in nutritive properties these cannot compare with the ordinary rice grown on irrigated land. An average sample of Indian rice yields on analysis—water 13, nitrogen 6·3, starch 79·1, sugar 0·4, fat 0·7, salts 0·5. In Oriental countries this grain is universally employed in a boiled state and eaten with or without curry. In Europe it is chiefly used for domestic purposes in puddings, but large quantities of the inferior descriptions are used in distilleries in the form of flour for sizing cotton goods and for many blending purposes for cheapening other articles. Universal

RIZIÈRES.

*Photo by W. L. H. Sheen & Co.*

RICE FIELDS.





as the cultivation of this cereal is in Ceylon at the present time from the slopes of the loftiest hills to the verge of the ocean, it was unknown to the aborigines of the Island, having been introduced by Wijayo, the first warrior immigrant from the Indian countries, 543 B.C. He located his followers and built his first city on the bank of a considerable river, which afforded abundant facilities for the irrigation so necessary in this cultivation. From that time to the final overthrow of the native dynasties in the Island, the sovereigns of the country were ever the lords and cultivators of the soil. To build tanks and construct water-courses were regarded as amongst the wisest acts of a beneficent ruler; and how vast some of these were, is attested by the extensive ruins which are to be found scattered in profusion along the sites of the ancient capitals of a perished dynasty. To-day the traveller along the thoroughfares of the Island is struck with the wide expanse of waving fields of paddy, yet the extent cannot compare with the endless tracts which must have gladdened the eyes of the ancient sovereigns of the country. During the period when Anurádhapura and Polonnaruwa were in the zenith of their glory, it is believed that the population of the country was five times its present number; yet all these were fed by island-grown grain. In the Batticaloa, Matara, and Anurádhapura Districts much good work has been done towards restoring the old irrigating tanks and channels, and in the latter especially a marked improvement is visible in the physical condition of the people. About half the rice consumed in the Island is imported from India, an import duty being levied on it of 5d. the bushel, the equivalent of the ancient tithe on home-grown grain of one-tenth the produce. The levy of one-tenth on all paddy grown has come down to us from the time of the native rulers, but in those remote days the grain was delivered into the royal granaries and there stored against times of dearth, when it was distributed to the people, or it was issued to the labourers who were called out to toil at the construction of irrigation works which were raised for the use of the people who helped to build them; these were therefore fed on the tithe collected from their own harvests. This tithe, worth about one million rupees, was subsequently (in 1878) commuted for a fixed money payment annually; but was finally abandoned in 1893. Home-grown rice is now free from taxation.

The present yield may be taken at 8,500,000 bushels of rice, raised from 650,000 acres (260,000 hectares); the yield being about fifteen-fold on the quantity sown. With liberal expenditure on the construction of irrigation works and improved methods of cultivation, the yield might in two

generations be doubled. The imported rice amounts to some 8,000,000 bushels, costing over £1,000,000.

The varieties of paddy grown in Ceylon are very numerous, extending throughout the country to several hundreds. They possess different characteristics, and are sown according to the time most suitable for them and to the period which each requires before being ripe for the sickle. There are two harvests in each year, dependent on the South-West and North-East monsoons. For what is known as the Maha harvest the sowings begin about the first week in July, continuing to the end of August. The Maha harvest commences about the middle of January, and continues till the end of February. The Yala harvest should be sown for in March, April, and May; the reaping takes place from the 15th July to the 15th September. The various kinds of paddy require from three to six months to ripen from the time of sowing to that of reaping. The amount of irrigation water needed by these varies very materially. Along the Western and Southern coasts, and in the Central Province, the period of growth is never less than three months and a half, and from that to six months. From the Northern Province there is one sample of rice, "perunella," which takes as long as six months to mature; all other varieties from that part of the Island maturing in from three to five and a half months. The local selling price of paddy varies considerably in different seasons, according to abundance or poverty of yield as well as the means of transport to other markets. At times it will sell at less than a rupee a bushel, at other times at one rupee and a half to two rupees the bushel. The exhibits of paddy and rice, both of which are remarkably perfect, are from various districts of the Western, Central, Southern, Northern, North-Western, and North-Central Provinces. Many of these varieties are extremely nutritious, and as such are preferred by Sinhalese to the best Indian varieties.

A. W. D. JAYASURIYA.  
337 kinds of Paddy.

| A. P. GOONETILLEKE.  
99 kinds of Paddy.

#### (b) Fine Grains, or Dry Grains.

The above terms are employed indiscriminately to designate the small cereals and pulses which are grown with but little cultivation or moisture on dry land, in contradistinction to the wet cultivation of low lands on which paddy is grown. Amongst the dry grain there is a hill-

paddy, dark coloured and of low nutritive properties. It is generally believed that the aborigines of Ceylon produced no other grain than such as these prior to the arrival of Wijayo and his numerous followers, who first imparted a knowledge of paddy cultivation by means of irrigation. The list of fine grains known to the Sinhalese of the South and the Tamils is rather long, but the most commonly known and cultivated are Kurakan (*Eleusine Coracana*), Amu (*Paspalum serobiculatum*), Meneri (*Panicum miliare* and *P. psilopodium*), Tana-hal (*Setaria italica*), Muneta (*Phaseolus Mungo*), and Kollu (*Dolichos biflorus*). Not only is the value of these grains very low as articles of food, but, partaken of continuously and without other nourishment, they render those who consume them liable to sickness, causing fever, diarrhoea, and sometimes dysentery. On the other hand, if properly cooked and eaten with other food, some are fairly good substitutes for rice. Fine grain is seldom grown where there is a sufficient supply of water for the cultivation of paddy; but where seasons are uncertain and the rainfall unreliable, as in many districts of this Island, it follows naturally that villagers should endeavour to supplement their precarious rice crops by a harvest, however poor, of some description of fine grain. How extensive this cultivation is throughout the country may be gathered from the fact that the tithe of the fine grain harvested used to vary from Rs. 50,000 to Rs. 60,000, representing a total value of crops of Rs. 500,000 to Rs. 600,000. The aggregate of fine grains grown throughout the interior must be much larger than these figures indicate, seeing that in many districts of the Island no tithe was ever levied on their cultivation. All taxation on hilt grains was abolished in 1893. Maize, or Indian Corn (*Zea Mays*) is not cultivated to a great extent in Ceylon; though where it is sown it is found to yield abundantly. In the drier portions of the Southern, Central, and North-Central Provinces it thrives with moderate care and culture, but has never become a favourite food of the people.

A. P. GOONETILLEKE. | CEYLON GOVERNMENT.  
20 kinds of Dry Grain. | A collection of Dry Grain.

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(c) **Tea** (*Camellia Thra*).

Tea is now, commercially, the most important product of Ceylon. It is the mainstay of European enterprise, and to the success which has attended its cultivation is due the

present prosperity of the Island. The subject is fully treated in a separate article (pages 37-57 of this Handbook), so the present references are limited to the exhibits on view in the Ceylon Court.

These exhibits are drawn from estates representing every district in the Island where tea is cultivated, and perhaps the most striking feature of the collection is that all are exhibited under the authority of the one common society—the Planters' Association of Ceylon—to which practically all the tea planters of Ceylon belong. Each district has its own branch Association, the members of which have selected the typical estate which is to have the honour of representing its produce at this Exhibition. The cohesion which secures representation in this manner, when so many hundreds of estate proprietors would be glad of the honour and publicity of exhibiting, is the keynote to the success of the Ceylon Planters. There are practically no secrets or methods of cultivation which are not the common property of all planters. Therefore the common standard is high, and the teas of all the estates of a district may be gauged by the qualities possessed by the estate selected to represent it.

The tea varies generally with the elevation, the soil, and the rainfall. Tea grown at a high elevation usually possesses a more delicate aroma, and commands a higher price at the tea sales, than tea grown in the low-lying districts; but the latter is generally a stronger, and therefore a more economical tea to buy, and the yield is generally larger.

The average yield is 450 lb. per acre, and the average price is about eight pence per pound (that is, one franc seventy-five centimes per kilo), delivered at a port in Europe. But there are favoured localities where the average price obtained is as high as one shilling per pound, and others where the yield per acre is as high as 750 lb. per acre.

As planters, men of all nationalities are equally welcome: no disabilities of any kind exist. The climate is generally good; the society is of the best; and there are amusements and sports to be obtained in most places. For an enterprising man with a moderate capital, ready to make his home abroad for a term of years, there is no country in which he may spend his life more happily, and no enterprise in which, while not realizing enormous profits, he may not with safety secure a return from his capital at least twice as high as is yielded from the ordinary class of safe investments in France or England.

The yield of tea in Ceylon at present is about 120 million pounds per annum, of which quantity some 90 million are absorbed by the London market. But it is realized that,

while the tea trade in China is decaying — through its inferior quality or archaic methods of preparation—the yield in India and Ceylon is increasing ; so the need for opening up fresh markets and extending on the Continent of Europe the taste for tea as a common beverage has been borne in upon the Planters' Association of Ceylon. Consequently, systematic efforts—with that combination and unity of purpose which distinguishes the tea planter—are being made to extend the markets for his produce, with the most remarkable results. During 1899, 32 million pounds have been disposed of elsewhere than in Great Britain ; and the statistical progress shown by a rise of no less than 12 million pounds during 1899, in the consumption of Ceylon tea in Russia, America, Canada, Australia, Switzerland, and Germany, is remarkable. Efforts in seeking new markets are bound to be continuous, and the results do not always appear at once ; but it is hoped that the appearance of Ceylon tea in Paris may lead, on the one hand, to a profitable investment of French capital in the production of the tea, and, on the other hand, to the consumption of a delicate, wholesome, and refreshing drink among the French people.

Ceylon is sanguine that the Awards of the Grand Jury, who decide on the merits of the Tea Exhibits, will bear out the claim that Ceylon tea has no compeer. But the visiting public can test for themselves the refreshing quality of tea at the Ceylon Tea House in the garden adjoining the Court, where tea is properly prepared and served by Ceylon servants.



TAMIL KANGANI'S WIFE.

#### List of Tea Exhibits.

Ambagamuwa Planters' Association.

Carolina (Lower Dikoya)—Carolina Tea Co. of Ceylon, Ltd. (G. W. Hutchison).

**Badulla Planters' Association.**

Glen Alpine—Uva Coffee Co., Ltd.

Sarnia—Scottish Trust and Loan Co. of Ceylon, Ltd.

**Dikoya Planters' Association.**

Campion (Bogawantala)—Chas. Strachan.

Darawella—Anglo-Ceylon and General Co., Ltd.

Norwood—Eastern Produce and Estates Co., Ltd.

**Dimbula Planters' Association.**

Drayton—Drayton Ceylon Tea Estates Co., Ltd.

Hauteville (Agrapatanas)—Chas. Strachan.

Holbrook (Lindula)—N. and L. Bonaparte Wyse.

**Dolosbage Planters' Association.**

Sutton (Agras)—J. Stewart.

**Galle District Planters' Association.**

Devaturai—L. T. Boustead and J. W. Bakewell.

**Haputale Planters' Association.**

Uabaragalla—Poonagalla Valley Ceylon Co., Ltd.

Kelburne—Ragalla Tea Estates Co., Ltd.

**Kalutara Planters' Association.**

Arapolakanda—Eastern Produce and Estates Co., Ltd.

Culloden—Rosehaugh Tea Co., Ltd.

Putupaula—Putupaula Tea Estates Co., Ltd.

**Kelani Valley Planters' Association.**

Dewalakanda (Dehiowita)—Ceylon Tea Plantations Co., Ltd.

Dunedin (Yatiyantota)—Ceylon Tea Plantations Co., Ltd.

Elston (Avisawella)—Mrs. Hayes and H. C. Harrison.

**Kotmale District Planters' Association.**

Queensberry—Kotmale Valley Estate Co., Ltd.

**Maskeliya Planters' Association.**

Bargany—Gordon Frazer & Co.

Brunswick—Upper Maskeliya Estates Co., Ltd.

Kintyre—Kintyre Estates Co., Ltd.

Ormidale—R. P. and J. G. Macfarlane.

**Maturata and Hewaheta.**

Bramley (Maturata)—W. H. Tindall & Co. (H. E. Power).

Columbia (Upper Hewaheta)—Edgar Turner.

Great Valley (Lower Hewaheta)—C. T. Kettlewell.

**Northern Districts Planters' Association.**

Belgodde (Kurunegala)—H. F. Harris and Gordon Frazer & Co.

Garatenne (Panwila)—Leechman & Co.

Kurugama (Kadugannawa)—H. J. Vollar and H. J. Gavin.

**Nuwara Eliya Planters' Association.**

Excelsior—Nuwara Eliya Tea Estates Co., Ltd.

Kandapola—The Kandapola Tea Estates Co., Ltd.

Oliphant—Boustead Bros.

Pedro—Nuwara Eliya Tea Estates Co., Ltd. (C. J. Bayley).

**Passara Planters' Association.**

Verelapatna (Madulsima)—Doomoo Estates Co., Ltd.

**Pundalu-oya Planters' Association.**

Dunsinane—Dunsinane Tea Estates Co. (W. P. Metcalfe).

**Pussellawa Planters' Association.**

Mariawatte—Ceylon Tea Plantation Co., Ltd.

**Rakwana Planters' Association.**

Aigburth—Mrs. Rowlands.

Hatherleigh—Colombo Commercial Co., Ltd. (C. Ross Wright).

**Uda-Pussellawa Planters' Association.**

Brookside—Scottish Trust and Loan Co. of Ceylon, Ltd.

St. Leonards—Standard Tea Co. of Ceylon, Ltd.

**Lipton, Limited, Colombo.** - Fancy and Commercial Teas.

**Co-operative Tea Gardens Co.**

**Maravilla Tea Co.**

**Mr. R. V. Webster.**

} Commercial and Fancy Teas.

**Mr. J. Stewart, Agra Patanas.**

**Mr. J. J. Marcel, Ramboda.**

} Commercial Teas.

#### **(d) Coffee.**

(i.) *Coffea Arabica.* (ii.) *Coffea Liberica.*

For some forty years the cultivation of Arabian coffee was the mainstay of the agricultural enterprise of Ceylon. The industry was one which in good seasons yielded very large returns, but it was at all times subject to uncertainty both in crop and in price; and, although it led to the acquisition of large fortunes, there were many instances where the losses of bad years absorbed the profit of the good years. Fostered and encouraged by the Administration and pioneered by Scotch planters of rare enterprise and determination, the cultivation of coffee assumed very large proportions, the value of the crop having risen in 1874 to nearly four millions sterling. At that period Ceylon "plantation coffee" had become firmly established as a favourite in the markets of the world, its fine flavour commending it to all lovers of the bean, the price realized being above the produce of all other countries with the exception of that from Mocha. The

flourishing course of the Ceylon coffee industry was chequered by one or two crises in the commercial and planting world, but properties rose steadily in value, and before the collapse of the enterprise from leaf disease as much as £90 to £130 an acre were paid for highly cultivated properties in favoured localities.

The cultivation, commenced under all the disadvantages of inexperience, had at the period last named matured into skilful culture, whilst at the same time improved modes of preparation by coffee curers in Colombo left scarcely anything to be desired. Some districts had been found unsuitable for the successful growth of coffee, and these were gradually abandoned as the trees ceased to bear. These mostly ranged in altitude from 1,000 to 1,800 feet above sea-level, and the fact became established that what is known as fine mountain berry was chiefly to be grown at altitudes between 3,000 and 5,000 feet above the sea (900 to 1,500 mètres).

After 1874, when the export touched one million hundred-weights, the shipments gradually declined, until the figures for 1898 show less than 20,000 cwt.

The cause of this heavy falling off in production is to be found in the ravages of a fungus (*Hemileia vastatrix*) which first appeared in one of the Eastern coffee districts of the Island in the year 1869, extending in the course of a few years over the greater part of the interior, with the result that not a single district is now free from it. The investigations of experts have failed to discover any remedy for this pest, which threatens the existence of coffee throughout the Island.

The range of prices of Ceylon coffee has greatly varied. In 1838 good plantation coffee sold in London at 103s.; in 1849 it had fallen to 38s.; it has since twice touched 120s., and at the present time, after several fluctuations, is quoted at 66s.

An experiment was made about 1877 to introduce from West Africa a hardier variety known as Liberian, which appeared well suited for cultivation in the low-country. At one time some 4,000 acres were under cultivation with this variety; but discouraging results at the commencement, combined with a sudden fall in prices, has led to the almost total abandonment of a cultivation which showed some promise of utility as a 'native' product, and which has given satisfactory returns in other British Colonies.

Badulla Planters' Association.      } Arabian Coffee.

Haputale Planters' Association.      }

Northern Districts Planters' Association.—Liberian Coffee,

(e) **Cacao** (*Theobroma Cacao*).

The cacao plant, like that of tea, was introduced experimentally into Ceylon many years before its cultivation was undertaken as a business pursuit; certainly before 1819. Of a consignment brought from Trinidad about the year 1835, a few plants were put out in the Government Garden, as well as in some other grounds at Kandy, and years afterwards seeds from them were planted in the Pallekelle estate, in the vale of Dumbara, a few miles to the eastward of the mountain capital, about the bungalow, with an eye to the picturesque rather than the practical. The soil being a rich deep loam, and the position well sheltered from winds, the twenty or thirty young plants that resulted from this seed grew apace, and in the course of time matured and bore fruit; but no heed was taken of these beyond gathering a few of them occasionally for use in the bungalow. In 1873, however, a few bags of the seed were shipped to London and reported upon by the brokers as worth 70s. per hundredweight, which led to the trees being cared for and a nursery formed, from which nearly all the present plantations have been stocked. The altitude of the vale of Dumbara, where this tree has been successfully cultivated, is 1,500 feet (480 mètres) above sea-level, with an average rainfall of less than sixty inches, which is now, however, considered insufficient for the yield of abundant crops. The favourable reports upon the early shipments of this new product by London brokers, and the readiness with which the plant was found to thrive in suitable localities, free from wind and favoured by rainfall, soon led to a large extension of this cultivation.

In the Matalé, Kurunégala, and Kégalla Districts this tree thrives and yields as abundantly as in Dumbara, and although the exports of the bean have not answered expectation, the chief cause is well known to have been a drought of great severity. The tree thrives well at sea-level, and even up to 3,000 feet; but the soil must be of a good friable nature and of some depth, for the tree is a deep feeder.

The early plantings of cacao were under deep shade, but this has been found objectionable when in excess; a little lofty shade and complete protection from wind being, however, necessary. In suitable soil and with moderate rainfall, the growth of the tree is rapid, and at three years of age it will begin to give crop, and continue to increase in yield up to its tenth or twelfth year, when it will have attained maturity. The area under cultivation is 22,000

acres (8,800 hectares) and is not capable of much development, as land with suitable soil and climate is limited.

The export of this bean has grown from very small beginnings—say 122 cwt. in 1880, gradually increasing up to 35,000 cwt. (1,750,000 kilos) in 1898, valued at £140,000. The quality of Ceylon cacao has become so well appreciated in European markets that it has commanded the highest prices of the day, and is sought for by the best makers of French chocolate on account of its fine qualities.

The exhibits shown in the Ceylon Court are from estates in each of the chief cacao-growing districts of the Island, Dumbara, Mátalé, Pérádeniya, and Kurunégala. What the quality of the bean is may best be learnt at the Ceylon Tea House, where a cup of cacao or chocolate may be obtained.

Major A. H. Pain, Meegama Estate.

G. A. Van der Poorten, Greenwood Estate, Galagedara.

Gordon Frazer & Co., Pallekelle, Dumbara.



### (I) Cocoanut Products.

(Cocoanuts, Copra, Poonac, Desiccated Cocoanut.)

Although the cocoanut industry is one of the oldest in the Island of Ceylon, the cocoanut palm (*Cocos nucifera*, Linnæus) is not an indigenous plant. It is nowhere found in a wild state ; and though its luxuriant growth on the sea-borde may suggest its ubiquity in the Island, such is not the case. Its introduction inland can be traced with certainty in almost every case, and experience has already shown that its productiveness is not favoured by distance from the sea and by altitude. Indeed, it ceases to fruit, as a rule, at 2,000 feet above sea-level, and its crops are disappointing even in places of low altitude where the rainfall is excessive, say above 100 inches a year.

There is a little doubt that the cocoanut was first introduced into the Island from the Eastern Archipelago, which is recognized as its original habitat ; but whether its introduction here was deliberate—as a curiosity or as a commercial product—or accidental, having been carried hither by ocean currents, is an open question. The fact that the palm is found in greatest abundance and flourishes best near the sea, and the tradition in the Island that the oldest plantation was on the Southern coast, favour the belief that the palm is not indigenous, and that its establishment is due to nuts

having been floated hither from islands lying farther East. The first mention of cocoanut plantations occurs in the Mahawansa, the ancient Sinhalese history of the Island, where King Aggrabodhi (in the sixth century A.D.) is credited with having established a plantation 36 miles in extent in the South of the Island, probably near Weligama, where a vihara contains a memorial of the king. In the 12th century mention is made of a similar benefaction by King Prákrama Báhu. There is an earlier reference to the tree in the gigantic contest between Dutthagámini and Elala (161 B.C.) when the warriors of the combatants armed themselves, the one with a cocoanut tree and the other with a palmyra. These palms are still the support of the Sinhalese and Tamil race respectively.

There is, perhaps, no product in the world which is put to so many and such profitable uses as the cocoanut palm. Even before the plant begins to bear, the large leaves, or fronds, are woven and used as thatch and for partitions of houses, while the thin midribs (or *ékels*) of the leaves are tied together and make effective brooms for sweeping, or singly are useful, owing to their strength and pliancy, in making bird cages. As soon as the plants begin flowering, the spathes can be tapped for toddy—which may be called the native beer; and the toddy when boiled yields jaggery (the native sugar), and from it is also distilled arraek, the spirit of the cocoanut palm. The fruits, when young—that is between three and six months old—are full of a sweet agreeable water (from a pint to a quart, according to the size of the nut) which is greatly appreciated as a refreshing drink during hot weather, either by itself or with the soft pulpy semi-transparent kernel. As the fruit ripens, the water lessens and the kernel grows harder and thicker, until the nut eventually drops from the tree. It takes about a year for a nut to fully ripen, but it is fit for plucking in about ten



A SEASIDE ROAD SCENE.

months; the test of the maturity of a nut being that it is light and the sound of the water in it is distinctly audible when it is shaken. It is from the kernel of the ripe nut, which is first grated, that milk is expressed for flavouring curries, or for extracting oil for culinary purposes, after boiling; while for the ordinary oil of commerce the kernels have first to be dried for five or six days in the sun, or over a slow fire, and the oil is expressed in mills which first crush the dried kernels (called *copra*) and then press the oil out of them. The weight of the oil is about two-thirds of the copra; the refuse, called poonac, weighs the remaining third, and makes an excellent fattening food for cattle, poultry, pigs, &c.

The nut is enveloped in a fibrous husk, the outer covering of which is generally green, though shades of yellow, brown, and terracotta red are not uncommon; but it assumes a dark brown as the nut ripens. The fibres of the husk are separated by machinery; the stouter and stiffer bristles being used for brushes, and the softer yarn for stuffing mattresses and for twisting into ropes and for making matting. Within the husk, and protecting the kernel, is a hard round shell, which has little outside commercial value, but which makes an excellent smokeless fuel, is used largely for making spoons for domestic and kitchen use, and can be carved beautifully for table ornaments.

As has been already indicated, it is the kernel which has the chief commercial value, both as an article of food and an almost indispensable ingredient in the preparation of food for domestic consumption, and also as an export in various forms. Although the palm has been cultivated and has flourished in the Island for centuries, its products did not until recently take as prominent a part as might have been expected among exports. The explanation is that the palm is slow of growth, taking from five to fifteen years, according to the character of the soil, to come into bearing, and not being in full bearing till ten to twenty-five years. In these circumstances, European capital, which expects quick returns such as coffee, cacao, tea, and cardamoms yield, has not been largely attracted to it; and the experience of European planters in the Northern and Eastern Provinces, where only very small profits were derived owing to the difficulties of transport, was not such as to encourage investors. What the native plantations yielded, lessened by the enormous claims of home consumption, was therefore practically all that reached the market and was available for export and for manufacture at the hands of British merchants. Within the past ten to fifteen years, however, there has been an

immense development of cultivation, partly through the growth in knowledge and enterprise of the Ceylonese themselves, and partly through the appreciation by Europeans of the fact that, though the returns from cocoanuts are low, they are surer than from any other industry, and that as an *investment* there is nothing to equal palm cultivation. The following figures from the exports statistics of the Island will show at a glance the immense development there has been in the cocoanut industry :—

	1861.		1898.
	Value. Cwt.      Rs.		Value. Cwt.      Rs.
Cocoanut Oil . . .	83,605 ... 1,040,430 ...		435,933 ... 6,684,306
Cocoanut Poonac . . .	No record ...		216,620 ... 897,426
Copra . . . .	27,279 ... 163,680 ...		506,277 ... 6,328,462
Coir . . . .	43,168 ... 308,640 ...		183,931 ... 1,767,345
Desiccated Cocoanuts	Not established Gals.		116,433 ... 2,342,971 Gals.
Arrack . . . .	393,335 ... 267,870 ...		65,902 ... 153,064 Nuts
Cocoanuts . . . .	— ... 79,960 ... 12,027,714 ...		541,247

The foregoing figures show not only the great advance made by every product of the cocoanut palm since 1861, but also the new uses to which the nut and its products are put. Thus, in 1861, either there were no exports of poonac (the kernel refuse after oil is expressed) or they were so small as not to be worth recording. Now they are sent away by thousands of hundredweights to various parts of the world, chiefly Europe, to fatten stock. The trade in desiccated cocoanuts is of very recent growth, and the exports have found a place in the commercial tabular statements only since 1891; now the kernels of about 40,000,000 nuts are annually deprived of their moisture after being sliced in desiccators, and packed in lead-lined boxes are sent to all parts of the world, including France, to be used for confectionery, &c.

The above items, however, do not exhaust the list of the products of the cocoanut palm sent away from the Island. There is a trade in cadjans (or thatch) and mats made of the leaf, in coir mats and rugs made of the husk, in laths and rafters made of the wood, and in a variety of articles, useful and ornamental, made of the shell. Altogether, the value of the exports of the products of the cocoanut palm cannot be far short of 19 million rupees a year or 30 million francs.

Nor, again, does this represent in any way the value of the cocoanut industry to the Island. It is the only great agricultural product whose home consumption is even

larger than the export trade. It is impossible to state accurately the value of the products of the cocoanut palm used by the people of the country, in the construction of their houses and huts, in domestic utensils, in trade implements, in food, in drink, in medicine, in the absolute necessities of tropical life, in luxuries ; but, even on the moderate calculation that a family uses  $1\frac{1}{2}$  nut a day, the 700,000 families of which the  $3\frac{1}{2}$  million people in the Island may be said to consist, would consume  $383\frac{1}{4}$  million nuts. A calculation of the exports of last year showed that nearly 400 million nuts were sent away in the husk, in the shell, as oil, and after desiccation : so that the production of the Island cannot be less than 800 million nuts.

It is estimated that, including dwelling gardens, about 700,000 acres (280,000 hectares) are planted with the cocoanut palm. This acreage, at 75 trees to the acre and 20 nuts to the tree, should yield 1,050 million nuts ; but a large number of trees are reserved for toddy drawing, and the distillation therefrom of the spirit known as arrack. The value of the arrack consumed in the Island (over a million gallons) has been computed in a recent official paper at Rs. 7,629,067, and of this sum the Government now receives Rs. 3,000,000 a year, or one-eighth of the total revenue, by the sale of the monopoly of retailing the spirit to "renters."\* The importance, therefore, of the cocoanut industry to the people and to the country is beyond controversy ; and the growth of the industry is steadily maintained.

### **Class 41.—Non-edible Agricultural Products.**

#### **1.—Fibres, Yarns, and Ropes.**

(a) COIR, the fibre obtained from the outer husk of the fruit of the cocoanut palm, is the most important of the Ceylon fibres, and constitutes a rather large item of export trade in the forms of prepared fibre, yarn, and rope. The figures for 1898 are as follows :—

Cwt.	Kilos.	Rs.	Francs.
183,931 ...	9,196,550 ...	1,767,345 ...	2,927,752

The yarn goes to England, the fibre chiefly to England and the United States and Australia. Coir yarn is largely used by matting manufacturers, and the fibre for filling mattresses and cushions of all kinds after undergoing a

\* *Vide Class 61 for further particulars under head "Arrack."*



*Photo by A. W. A. Platé & Co.*

A NATIVE BEAUTY.

TYPE DE BEAUTÉ INDIGÈNE



baking process. In Ceylon coir yarn is employed very generally for a great variety of purposes, amongst others for fastening together the planks of dhonies, or native square-rigged vessels, in which nails are seldom employed by reason of their liability to rust, whereas coir resists the action of salt water with impunity.

**COIR AND JUNGLE ROPES.**—Coir rope is the only description exported, and that to a less extent than formerly. The export to the United Kingdom has practically ceased, but coir ropes are still shipped to the Straits, where they are used on board native trading vessels as cables, hawsers, and for running rigging. The manufacture of coir rope is carried on chiefly in the vicinity of Galle and Colombo, being entirely the produce of hand machinery. The use of jungle ropes, of which a variety are shown, is confined to the rural districts in the forming of fences, house-building, lashings of rustic bridges, tethering of cattle, &c.; whilst ropes of buffalo hide and kitul fibre are usually emp'oyed in the capture of wild animals. The matting and rugs in the Court were manufactured in Colombo by the firms of Vavasseur & Co. and Freüdenberg & Co.

**Mr. J. W. C. DE SOYZA.—**  
Coir Fibre.

HORAKELE ESTATE Co.,  
Ltd.—Bristle and Mattress Fibre.

**Messrs. FREUDENBERG &**  
Co.—Coir Matting.

Mr. U. D. S. GUNASEKERA.  
—Coir Fibre.

**Messrs. VAVASSEUR & Co.**  
—Coir Matting.

Messrs. CHAS. P. HAYLEY  
& Co., Galle.—Coir Yarn.

(b) **KITUL FIBRE** is derived from the stalks of the leaves of the Kitul or Jaggery palm (*Caryota urens*): the quantity exported is 2,500 cwt. (125,000 kilos) valued at Rs. 100,000 (160,000 francs). This palm grows wild in the hill districts and represents almost as much, from its many uses, to the Kandyan as the palmyra does to the Tamils of the dry region of Jaffna, or the cocoanut to the Sinhalese of the seaborde. For export the fibre is used in the manufacture of brooms, brushes, and some few ornaments; it is in much request and its use is only limited by the difficulty in procuring it. In Ceylon, especially in the Southern Province, it is used to make baskets which, ornamented with silver work, find a ready sale. The exhibits have been prepared by Messrs. Darley, Butler & Co.

(c) **PALMYRA FIBRE** is derived from the Palmyra Palm (*Borassus flabelliformis*), the “universal provider” in the Jaffna peninsula, the dry region of North Ceylon, where it covers an area of 40,000 acres (16,000 hectares). The sheathing leaf-stalks of the palmyra, as of many other palms,

contain a stiff thick fibre, and a new industry in the collection of this has sprung up in the North of the Island. These fibres or bristles are much like the "Prassaba," so largely exported from Brazil (the produce of the palms *Attalea funifera* and *Leopoldinia Prassaba*) for brush-making, and are doubtless exported hence for the same purpose. Immense numbers of the palmyra exist in the Jaffna peninsula and the islands near, and it is in the latter especially that the business of collecting the leaf-stalks for sale has been carried on by the inhabitants.

Unfortunately, in their eagerness for this easy method of money-getting, they have treated the trees so badly that large quantities of young palmyras have been destroyed. As this palm is the principal permanent source of food in the country, and is besides of immense utility for timber, fences, &c., it became obviously necessary to put a stop to this reckless destruction, and steps have been taken to regulate the fibre industry, which, properly conducted, has become a valuable addition to the means of living for the inhabitants. Owing to the restrictions imposed, the export, which in 1891 was as high as 12,000 cwt., has fallen to 4,000 cwt. (200,000 kilos) valued at Rs. 45,000 (72,000 francs).

Messrs. DARLEY, BUTLER & Co., Colombo.

CEYLON GOVERNMENT.—Collection of Palmyra products prepared by the Government Agent of the Northern Province.

(d) OTHER FIBRES.—Rhea, Ramie, or China grass (*Boehmeria nivea* and varieties) have been cultivated of late years in anticipation of an extended demand arising from the development expected to follow on the Gomess patent for decortication; and it has been established that there is ample land with a suitable soil and rainfall, but the terms offered to the producers of £10 per ton of ramie 'ribbons' are found unremunerative.

Aloes of many kinds (*Fourcroya gigantea*, *Agave Americana*, and others) as well as the pineapple and the plantain (*Musa textilis*) yield excellent fibre and are abundant; but the trade, which has grown to such large proportions in Mauritius and the West Indies, has not yet been developed in Ceylon.

Mr. U. D. S. GUNASAKERA.—A collection.

Among other indigenous fibres, the following are shown : Wara (*Calotropis gigantea*); Niyanda (*Sansevieria zeylanica*); Kalati (*Polyalthia suberosa*); Banian (*Ficus bengalensis*); Velam (*Acacia leucophloea*); Attikka (*Ficus glomerata*). All of these are used by villagers in making ropes and cordage for domestic, agricultural, or hunting purposes, but have not

received attention with a view to commercial uses. The Niyanda is largely used by natives in the making of fine coloured mats and for whips and ornaments used in temple processions.

#### CEYLON GOVERNMENT.

Collection of 65 varieties of Fibres  
by the Ratémahatmayá of Galboda  
Kóralé, Kégalla District.

Collection of 62 varieties of Fibres  
by the Government Agent, Province  
of Sabaragamuwa (Ratnapura).

#### 2.—Oils and Oil Seeds.

**COCOANUT OIL.**—The tree producing the nut (*Cocos nucifera*) which yields this oil may not be indigenous, but in any case it was found growing in abundance by the first Europeans who settled on the Island. Yet the trade in the oil is of comparatively modern date, this product never having been shipped to Europe by either Portuguese or Dutch. To a former Governor of Ceylon, Sir Edward Barnes, who formed the first coffee plantation, belongs the credit of inaugurating a trade in this oil with England. He imported a small steam engine and mill-stones for crushing the dried kernel, or copra; and when at the close of a few years the experiment was shown to be a complete and profitable success, the machinery was sold to a mercantile firm in 1834. During the past fifty years the cultivation of the cocoanut palm has been largely extended, the exports for 1898 amounting to 435,933 cwt. (21,796,650 kilos) valued at Rs. 6,684,306 (19,694,888 francs).

In the year 1836 the export oil trade received a considerable impetus by the action of agents of Price's Patent Candle Company, of the Belmont Factory, who in 1836 erected large steam mills at Hulftsdorp, a suburb of Colombo, which proved so successful that other large and costly oil factories were afterwards established, in which the newest and most powerful hydraulic steam works were put up. Yet notwithstanding the investment of so much capital in powerful machinery for oil-making, steam has never been able to efface the simple native mill, or chekku, from competition, and at the present time there are said to be eight hundred of these primitive mills at work throughout the country. Owing to the presence in this oil of a large proportion of stearine, or fatty saponaceous matter, it becomes solid at a low temperature; in warm climates it is perfectly limpid and bright. The stearine, extracted from it by pressure, is employed in the manufacture of soap and candles, the well-known "Belmont" candles being largely composed of this substance. In Ceylon the natives use it when fresh for

cooking purposes, and it is considered by them as an excellent oil for the hair, for which purpose it is used freely. The oil of the bright yellow, or "king" cocoanut, made by boiling the dried kernel in water, is highly esteemed by all classes of natives as a soft and efficacious oil for the hair ; it is devoid of the strong nutty aroma of the ordinary oil. When solid, in cool weather, the oil is beautifully white ; the purified oil remains liquid and is of a bright pale straw colour, clear as water. In Ceylon it was at one time commonly used for burning in lamps, but kerosene oil has now entirely superseded it amongst Europeans, and to a great extent with the natives.

Messrs. DARLEY, BUTLER & Co.

Mr. ARNOLD DIAS.

Mr. A. P. GOONETILLEKE.

Mr. A. E. HOLSINGER.

L. B. NUGAWELA, Ratematmaya of Beligal Korale, Kegalla.

Mr. G. C. WARR.—The ebony stand prepared to show off this collection has been carved by Don Poloris Gunawardana, Muhandiram.

**CASTOR** (*Ricinus communis*).—This plant grows freely on almost any soil in the low-country, where there is not much shade ; indeed, when once introduced on any land it is often found difficult to eradicate. It is a free seed-bearer, but is not a favourite plant with the natives, as it is supposed to be prejudicial to health when grown in any quantity near habitations ; thus it is not extensively cultivated in Ceylon.

**CASTOR OIL.**—The produce of the seeds of *Ricinus communis* is not made in this Island for commercial purposes, though met with in bazaars in outlying districts, inhabitants of the towns preferring to employ the imported article from Madras, which is finer in quality than the locally-made oil.

**GINGELLY, or SESAMUM SEED.**—The plant producing this small seed (*Sesamum indicum*) grows freely in most parts of India, and is cultivated to some extent in the Jaffna and Kurunegala districts. It is largely exported from India to Europe, but only moderately so from Ceylon, though there is no sufficient reason why it should not become an important article of export, for it is most readily grown and is a profitable cultivation. At present the local production of this seed is consumed in the country in the manufacture of oil, which is much esteemed by natives both for cooking and burning. The home production, though considerable, is not equal to the demand, as it is in high favour as a manure. The imports have recently been very large.

**MUSTARD SEED** (*Brassica juncea*).—But little cared for in the Island and, though a free grower in the most indifferent soil, has never been a favourite product with the natives.

**CROTON SEED** (*Croton Tiglum*).—The little tree producing these seeds, which afford Croton oil, is not native to Ceylon, but is common enough in gardens, and called Jayapala. Its cultivation has now been taken up by a few European planters, and is said to be profitable.

**KEKUNA OIL** (from *Aleurites triloba*).—This is sometimes called candlenut oil, for the reason that the seeds, when strung upon a thin strip of bamboo and lighted, burn like a candle. These contain fifty per cent. of the oil, which is expressed by the ordinary native mill and exported to Europe, where it is employed in soap-making, and is found to be far better than olive oil for cloth dressing. The kekuna tree thrives up to an altitude of 2,000 feet, and is still much used in the villages. The waste after oil-pressing is esteemed as a fertilizer in paddy cultivation.

**KOHOMBA, or MARGOSA OIL**.—The neem, or margosa tree (*Azadirachta indica*), grows freely in the light sandy soil of the Eastern and Northern districts of the Island. From the fruit is extracted, by boiling or pressure, a fixed acrid bitter oil, deep yellow, with a strong disagreeable flavour. It is used medicinally as an antiseptic and anthelmintic. Medical practitioners in Ceylon say they have found this oil as efficacious as cod liver oil in cases of consumption and scrofula. The oil is applied externally to foul ulcers, and is also used as a liniment in rheumatic and spasmodyc affections and in headaches from exposure to the sun. By native practitioners the oil is much used in suppurating scrofulous glands.

**CAJU or CASHEW NUT OIL** (from *Anacardium occidentale*).—This is obtained from the small edible nut produced by an introduced tree, which thrives in any light soil. The oil thus obtained is of a pale straw colour, sweet and bland, but, owing to the large demand for the nuts by natives for food, very little of the oil is made, and scarcely any for export. The nuts are said to yield about forty per cent. of their weight of oil.

**MI OIL**.—This yellow and semi-solid oil is expressed from the fruit of a large evergreen tree common to Ceylon and South India, the *Bassia longifolia*. It is not an oil of commerce, and is rarely seen even in native bazaars, but native medical men prescribe it as efficacious in certain cutaneous disorders. The residuum, or oil-cake, left after extracting this and the preceding oil is frequently baked and employed afterwards for washing the hair, being supposed to possess very cleansing properties. Other oils which may

repay analyses are derived from the seeds of the Palu and Margosa trees.

**OIL CAKE.**—Poonac and gingelly oil cake are exhibited. These oil cakes are remains of the crushed kernels and seed of the cocoanut palm and the gingelly. They are both used as food for cattle, and form an excellent manure when applied to land in a semi-decomposed condition. It has been found in Europe that a small portion of cocoanut poonac mixed with the ordinary food of horses tends to impart a glossy appearance to the animals' coats, and at the same time promotes their general health. In this way it has come to be used pretty generally by French military authorities for cavalry horses. The export of the cocoanut poonac has not much increased of late years, owing to the raw material "copra," from which it is produced, being largely shipped to European continental ports. The quantity of poonac exported in 1898 was 216,620 cwt., valued at Rs. 897,426 (1,435,880 francs). The principal markets are Germany, Belgium, and the United Kingdom.

**COPRA.**—The dried kernel of the cocoanut is an article in enormous demand, especially in Russia, Belgium, Germany, and France. The total export in 1898 was 506,277 cwt., value Rs. 6,328,462, or over ten million francs.

**DESICCATED COCOANUTS** are also very largely exported for the confectionery and biscuit trades. The market is chiefly in the United Kingdom; but since the introduction of the article to America at the Chicago Exhibition a large trade is being built up with the United States. The total export in 1898 was 116,433 cwt., of the value of Rs. 2,342,971 or 3,748,752 francs.

**Messrs. DARLEY, BUTLER & Co.**—Copra, Poonac, and Desiccated Cocoanut.

**Mr. J. W. C. DE SOYSA.**—Desiccated Cocoanut.

**Messrs. C. P. HAYLEY & Co.**—Copra, Poonac, and Desiccated Cocoanut.

**Messrs. LEECHMAN & Co.**—Copra, Poonac, and Desiccated Cocoanut.

**The ORIENT COMPANY.**—Copra, Poonac, and Desiccated Cocoanut.

**Mr. W. H. WRIGHT.**—Copra, Desiccated Cocoanut, and specimens of the varieties of Cocoanuts.

### 3.—Essential Oils.

**CITRONELLA OIL.**—This oil is distilled from the citronella grass (a cultivated variety of *Andropogon nardus*), largely cultivated in the Western and Southern districts of Ceylon for this purpose by both Europeans and natives.

There are about thirty-six thousand acres of land under this cultivation, mainly in the Districts of Mátara and Galle of the Southern Province. From a few thousand ounces the export trade, chiefly to England and the United States, has enormously increased, as may be seen from the following figures, showing the shipments for the last five years :—

							Ounces.
1894	...	...	...	...	...	...	15,724,116
1895	...	...	...	...	...	...	15,007,730
1896	...	...	...	...	...	...	19,492,669
1897	...	...	...	...	...	...	18,853,637
1898	...	...	...	...	...	...	24,050,986

The result of this large increase in the supply has been a heavy reduction in the selling price of the oil in Ceylon, from three rupees to one rupee for a bottle of 22 ounces. The oil is used chiefly by soapmakers, but to some extent also by perfumers in the composition of pomades and other scented preparations. The process of manufacturing this essential oil differs in no way from that adopted in Europe in the distillation of cinnamon and other oils. Most of the oil now shipped to London and New York goes in bulk packed in iron drums weighing several hundredweights, and not in bottles. It is, however, still exported to London in glass. It requires scarcely any cultivation for the first year or two, but after four or five cuttings it needs manuring and digging. It is cut twice a year. This article of export realized in 1898 Rs. 1,176,215, or 1,881,960 francs.

CEYLON GOVERNMENT,  
through the Government Agent of  
the Southern Province, Galle.

Messrs. E. COATES & Co.,  
Galle.

Mr. JACOB DE MEL.

Messrs. WINTER & SONS, Baddegama.

LEMON-GRASS OIL is produced from a grass somewhat coarser than the preceding, called *Andropogon citratus*, and yielding a lower proportion of essential oil. The plant producing it receives scarcely any cultivation, and is mostly in the hands of natives in the Southern Province. It has an odour so similar to that of verbena that it is sometimes called oil of verbena. Like the citronella oil, it is largely employed in the manufacture of scented soaps as well as in pomades and other articles of perfumery, but chiefly in the manipulation of Eau-de-Cologne. It grows very freely in almost any light soil with a good rainfall, but cannot stand long droughts; hence its cultivation has been chiefly confined to the Southern Province, where as much as 100 to 150

Mr. J. W. CHAS. DE SOYSA,  
Colombo.

Messrs. C. P. HAYLEY &  
Co., Galle.

Mr. G. C. WARR, Colombo.

inches of rain fall within the year. The demand for this oil is far less than for the kindred oil of eitronella, not more than 2,376 oz. having been exported last year. The local value of the article put up in glass bottles is about Re. 1·80 per 22 oz.; its manufacture is entirely in the hands of natives.

**OIL OF CINNAMON** (from *Cinnamomum zeylanicum*).—This is distilled in considerable quantities from the broken quills of cinnamon and the coarser portions of the bark, which are incapable of being worked into the usual quills. This oil is of a pale golden colour, highly aromatic in odour, and of an extremely sweet and delicate taste on the tongue, but is rarely to be had of fine quality from the circumstance that in its distillation a good deal of coarse trunk and root bark is mixed with the true cinnamon. Its uses are various, in confectionery, perfumery, and medicine. The finest pure oil always commands a high figure, as much as a rupee the ounee, but ordinary oil about one-fourth of that price. The shipments of this oil have been as follows :—

Cinnamon oil	...	77,796 oz.	...	Rs. 43,558
Cinnamon leaf oil	...	94,720 oz.	...	Rs. 14,851

to the United Kingdom and Germany. The greater portion has gone to the United Kingdom.

The leaves of the plant yield a greenish coloured oil, having somewhat the odour of cloves; it is employed to a large extent in veterinary medicines, but its value is not more than twopence the ounee.

<b>CEYLON GOVERNMENT</b> (through the Government Agent, Western Province).	<b>Mr. JACOB DE MEL.</b> <b>Mr. H. SALGADO.</b> <b>Mr. G. C. WARR.</b>
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#### 4.—Dyes and Dye Stuffs.

(a) **ANATTO**.—This useful and delicate orange-red dye is obtained from the pulp surrounding the seeds of the *Bixa Orellana*. It is largely used in Europe and India in dyeing silks and also for colouring cheese and other articles. The pulpy matter is separated from the seeds by boiling, and when dried is pressed into cakes and shipped. It is imported into Europe mainly from French Guiana, where it is native : but the plant is an ancient introduction to Ceylon and is now semi-wild. It thrives well in light soil up to 2,000 feet (600 mètres) and is cultivated mainly in the Matalé District. The quantity exported from Ceylon is small compared with the returns of French Guiana, Guadeloupe,

and Jamaica : its declared value in 1897 was Rs. 21,649 (35,000 francs).

Mr. W. VAN STARREX, Crystal Hill, Matale.

(b) CHAYA or CHOYA ROOT, or MADDER (*Oldenlandia umbellata*), was exported to the amount of 1,500 cwt. (75,000 kilos) early in the century, but the crop is now almost wholly consumed locally. This root is collected in the Northern and Eastern Provinces and is in general use amongst native dyers for colouring cotton cloths. Used with mordants it has lasting properties.

CEYLON GOVERNMENT (through the Government Agent of the Northern Province, Jaffna).

(c) MYROBALAMS.—The fruits of *Terminalia belerica* and *T. Chebula*, both growing freely in the Island, and known amongst the Sinhalese as *Bulu* and *Aralu*. The fruit of the latter is more highly esteemed than that of the former. When used with iron salts it gives a black dye; applied with turmeric and indigo it yields a green colour, and with catechu a brown dye. Employed with alum, the nuts give a tolerably good yellow dye. Myrobalams have been exported under the name of gall-nuts to the annual value of Rs. 28,000, but the export trade has almost ceased owing to the development of tanneries in Colombo, where the Island production of gall-nuts and other tanning substances is now entirely absorbed. The export from Ceylon in 1898 was 569 cwt., worth Rs. 8,051. This subject is treated under Class 89, where an interesting exhibit is shown of an industry developed through the enterprise of a Sinhalese trader, Mr. W. D. Carolis.

(d) ORCHELLA WEED (*Roccella Montaguei*) is a lichen which grows on the stems of cocoanut palms and the lower branches of jungle trees near the coast in the Puttalam, Kallpiyiya, and Jaffna Districts. It is the most valuable dye stuff shipped to Europe, and commands a price of £36 a ton. It is used in the preparation of litmus and orchil. The export has been as large as 1,157 cwt. (57,850 kilos), but has of recent years been trifling.

(e) SAPANWOOD.—This wood is from the stem, root, and branches of a tree (*Caesalpinia Sappan*) long ago introduced into Ceylon and growing in most of the maritime districts of the South and West of the Island. It is of tolerably rapid growth in almost any soil. When immature, the wood possesses but little colouring matter. It is freely exported to the United Kingdom. The shipments in 1897 show a falling off on previous years, the quantity being 6,130 cwt. (over 300,000 kilos) valued at Rs. 24,306 (40,000 francs).

## AGRICULTURE.

A decline in the home value of this dyewood has caused it to be neglected of late years, the tree no longer being much cultivated, as was formerly the case, generally as a hedge or boundary fence to native gardens or plantations.

(f) JAKWOOD.—The wood of the Sinhalese *kosgaha* (*Artocarpus integrifolia*) dyes an extremely useful yellow, and is employed by the natives for dyeing house mats, fibres for ornamental purposes, as well as for giving to cotton and silk cloth the peculiar pale canary colour which is required for the robes of the Buddhist priesthood. It is not exported.

### 5.—Arecanuts.

The cultivation of the Areca Palm (*Areca Catechu*)—the most graceful of all palms, likened by the Hindu poets to



CLIMBING ARECANUT PALMS.

“an arrow shot from heaven”—was in Kandyan times the mainstay of the king’s revenue and was the medium of exchange for the salt of Puttalam and the grains of South

India. The Dutch were best able to control the restlessness of the Kandyan kings by closing the port of Kalpitiya, then the principal outlet for this trade. The palm flourishes best in the Kégalla District, but the total area under cultivation in Ceylon is 65,000 acres (26,000 hectares). The home consumption of the "betel" nut, as it is often erroneously called, is very large, but the export amounts to 140,000 cwt. (7,000,000 kilos) valued at Rs. 1,400,000 (2,240,000 francs).

The areca palm grows freely in Penang (which is the Malay name of the palm), in Acheen, Siam, the Malabar Coast, and Zanzibar. India absorbs the whole surplus crop of the palm—a very large quantity, probably 100,000 tons. Preparations used for dyeing or tanning are exported to Europe from Bombay.

**Mr. J. H. MEEDENIYA**, Ratemahatmaya, Ruanwella.

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**6.—Cinchona Bark, or Quinine** (*Cinchona succirubra*, *officinalis*, and *Lederiana*).

A reference to the romantic history of the rise and fall of this cultivation is made on page 39 of this Handbook. The importation and cultivation of cinchona was due to the failure of coffee and the indubitable courage of the planters, who sought from all sides for a staple product by means of which they might restore their fallen fortunes. In 1877 the industry was launched : in a few years the average export was fourteen million pounds of bark (over 6,000,000 kilos), or half the World's production. This marvellous growth had three main results : it saved the fortunes of the Ceylon planters until the tea industry was established ; it ruined the enterprise of cinchona cultivation by flooding the market and lowering the market price in Europe of quinine from twelve shillings per ounce to one shilling and threepence ; and it conferred on the world the inestimable benefit of a cheap febrifuge.

The cultivation has now been almost wholly abandoned in favour of tea ; but should the prices rise sufficiently to make the cultivation of cinchona remunerative—as the present condition of the market indicates—the Ceylon planters are ready to renew the supply on a more moderate scale.

<b>Mr. G. C. ANDERSON</b> , Leangavella, Haputale.—Three varieties— <i>Officinalis</i> , <i>Lederiana</i> , and <i>Succirubra</i> , in four grades of each, original and renewed shavings.	<b>Mr. G. CHRISTIE</b> , Kanape-diwatta, Ulapane.— <i>Lederiana</i> .
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<b>Mr. F. G. A. LANE</b> , Blair Athol, Dikoya.— <i>Succirubra</i> .
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**7.—Indiarubber, or Caoutchouc. (Para rubber = *Hevea Brasiliensis*; and Ceara rubber = *Manihot Glaziovii*.)**

This cultivation, for which the World's markets now demand a supply of more than 50,000 tons a year, is attracting much attention in Ceylon. With proper care and under a suitable rainfall, there is a large area in the low-country where rubber can be collected, in a reasonable time from the date of planting, in sufficient quantity to be profitable. The planting, therefore, of Para rubber especially, is only limited by the supply of seed. As usual in its history, the Royal Botanic Gardens of Pérádeniya have done pioneer work for the community, and its avenue of Assam india-rubber (*Ficus elastica*) planted in 1833 is one of the most attractive sights of the Gardens. About one thousand acres are now under cultivation with rubber trees, and the samples placed on the market have realized encouraging prices. The industry however is still in an early stage, and the export has not yet reached significant figures, the quantity placed on the London market in 1898 being some ten tons.

The DIRECTOR, ROYAL BOTANIC GARDENS, Pera-deniya.

The KALUTARA PLANTERS' ASSOCIATION, Kalutara.

The NORTHERN DISTRICTS PLANTERS' ASSOCIATION, Kandy.

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**8.—Tobacco.**

The cultivation of tobacco for the European market is an industry which has had many vicissitudes : the tobacco raised has proved of good quality and has realized good prices, the leaf being specially prized for its soft smoothness suited for the outside leaf on cigars. The uncertainty, however, of the crop in a damp climate and the difficulty in finding soil of sufficient richness have militated against the establishment of tobacco growing as an industry under European management. The cultivation, however, still exists on a small scale in the Dumbara valley near Kandy.

In the dry zone, however, especially in Jaffna, Mannar, Mullaittivu, Chilaw, and Negombo, tobacco is extensively cultivated by the Tamils, who display great aptitude in the industry and are untiring in their care of the plants, which during long periods of dry weather require an abundant supply of water. The plants are irrigated by means of bamboos and small water channels, and manure is freely applied, though the lime in the soil acts as a liberal fertiliser. The tobacco of Jaffna is chiefly exported to

the Indian coasts, where it finds a ready market for the manufacture of cigars for native consumption. The tobacco industry is indeed the mainstay of the population. The price ranges from Rs. 15 to Rs. 30 per 1,000 leaves ; and Jaffna cheroots are sold from Rs. 2 to Rs. 10 per 1,000. The tobacco grown in the Negombo and Chilaw Districts is of very fair quality and is taken to the Colombo market for sale, where it is highly esteemed in native circles, but usually the curing of the leaves is defective, added to which the cultivators are too often in the habit of allowing the leaves to become old and coarse before they are harvested, with the view of increasing the weight, by which means the flavour is much deteriorated. The area under cultivation is probably 35,000 acres and is extending. The export to India in a favourable season reaches 60,000 cwt. (3,000,000 kilos), while the home consumption is much in excess of this amount, as the habit of smoking cheroots is rapidly taking the place of the chewing of betel leaves, lime, and arecanuts.

**CEYLON GOVERNMENT.**—From Jaffna, from Chilaw, and from Trincomalee.

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## **GROUP IX.—FORESTS, SPORT, FISHING, AND WILD CROPS.**

### **Class 50.—Products of Forest Industries.**

#### **(a) Timber.**

The area of Ceylon is nearly 16 million acres or 6,400,000 hectares ; divided as follows :—

						Per cent.
Cultivated lands	...	...	...	...	...	15
Fit for cultivation	...	...	...	...	...	32
Pasture	...	...	...	...	...	5
Waste lands	...	...	...	...	...	36
Good forest land	...	...	...	...	...	12

With the exception of some extensive sandy tracts near the coast in the dry districts and the grassy downs called "patanas" in the hills, the whole of Ceylon to the summits of the highest mountains was originally covered with dense forest. This has, however, long ceased to be a characteristic

of the country. In the thickly populated districts of the South-West of the Island, with its abundant rainfall, there is

now but very little primary or virgin forest remaining; its destruction has been principally due to the practice for centuries of the indolent system of "chena" cultivation, in which the growth of ages is sacrificed to one or two crops of dry grain, the forest being cut down and burnt for the manure obtained from ashes. In the hills the agent of destruction has been European enterprise, hundreds of square miles having been completely cleared in opening coffee and tea estates: between

3,000 and 5,000 feet there is now no forest save small isolated patches; above 5,000 feet land is no longer sold. A vast proportion, however, of the dry district of Ceylon, which is sparsely populated, and comprises nearly four-fifths of the area of the Island, is still a forest country, but the trees which remain after the excessive exploitations made earlier in the century are for the most part small, and in only a few places are there forests of much value. These forests are in charge of a Conservator of Forests.

A series of hand specimens is exhibited showing 240 different kinds of forest timber, practically all the determined varieties of any importance. These specimens were collected by the late Dr. Trimen, F.R.S., Director of the Royal Botanic Gardens at Péradeniya. As the object aimed at in this series was to exhibit generally the woods of Ceylon, many of the inferior kinds only used for domestic purposes by the natives are included, as well as the more important timbers and rare or little-known woods.

The blocks are all of a mètre in height but of varying diameters, the lower portion with the bark left on and the upper portion cut to show the tangential, radial, and transverse sections of the wood. The names are painted on the sloping surface; those printed in italics are "reserved" trees under the Forest Act and are of value. The native names



TREE FERN, HAKGALLA.

marked "S" are Sinhalese, "T" Tamil. The letters in brackets indicate the Province from which the wood is obtained. The asterisk denotes that the tree is not truly a native of Ceylon.

As Ceylon contains many beautiful cabinet woods and some commercial timber of high value, the enumeration of the most important will prove of interest.

**CALAMANDER** (*Diospyros quæsita*), known to the cabinet trade as 'coromandel,' is found only in Ceylon, and is now very rare; it is the most highly prized wood among cabinet-makers. Its rich colouring and bold veining are beautiful. It is represented by some remarkably fine planks, seventeen feet long. Some fine bookcases and cabinets are exhibited to show the wood, ornamented and carved by native workmen.

**TAMARIND** (*Tamarindus indica*) presents a variegated surface highly valued in the cabinet trade. It resembles calamander, but has a pink hue which distinguishes it from the rich chocolate brown of the calamander. The foliage and symmetry of this tree are alike beautiful. It is the heaviest wood in Ceylon.

**EBONY** (*Diospyros Ebenum*) is a very heavy, hard, and close-grained black wood, capable of taking a fine polish; it is found at its best and in considerable quantities in Ceylon. It realizes up to Rs. 200 per ton, and is in much demand for cabinet-work; much also goes to China for making chopsticks. Some native carvings are shown in this handsome wood.

**SATINWOOD** (*Chloroxylon Swietenia*), a dense heavy wood of a light hue, is also in much demand for cabinet-work. The variegated wood called "flowered" or "figury" satinwood is very handsome and fetches high prices. The cases in which the tea exhibits are shown are made of satinwood.

**JAK** (*Artocarpus integrifolia*), **NEDUN** or **NANDOON** (*Pericopsis Mooniana*), **SURIYAMARA** (*Albizia odoratissima*), and **WÁ** (*Cassia Siamea*) are furniture woods in much demand locally. Specimen cabinets are on view. These woods do not plane readily and are too hard to be popular among furniture makers in Europe.

**NÁ** (*Mesua ferrea*), **PALU** (*Mimusops hexandra*), and **RANAI** (*Persea semecarpifolia*) are very hard and very heavy forest trees, practically imperishable, and in demand for works which require great durability. Palu takes a fine polish, and notwithstanding its hardness it is a good wood for carving, and Ranai has often a curly fibre with a golden lustre.

SAPU (*Michelia Champaca*) and LUNUMIDELLA (*Melia dubia*) are soft light woods of a close grain, easily worked and durable, and therefore in much general demand.

MILLA (*Vitex altissima*).—A straight-grained handsome wood of a gray colour, used for furniture and cabinet-work and one of the best and most durable timbers in the Island. The tree, which attains its finest dimensions in the Eastern Province, grows to a height of 40 to 50 ft. The small sample sent was planed and moulded, in both cases leaving an excellent surface.

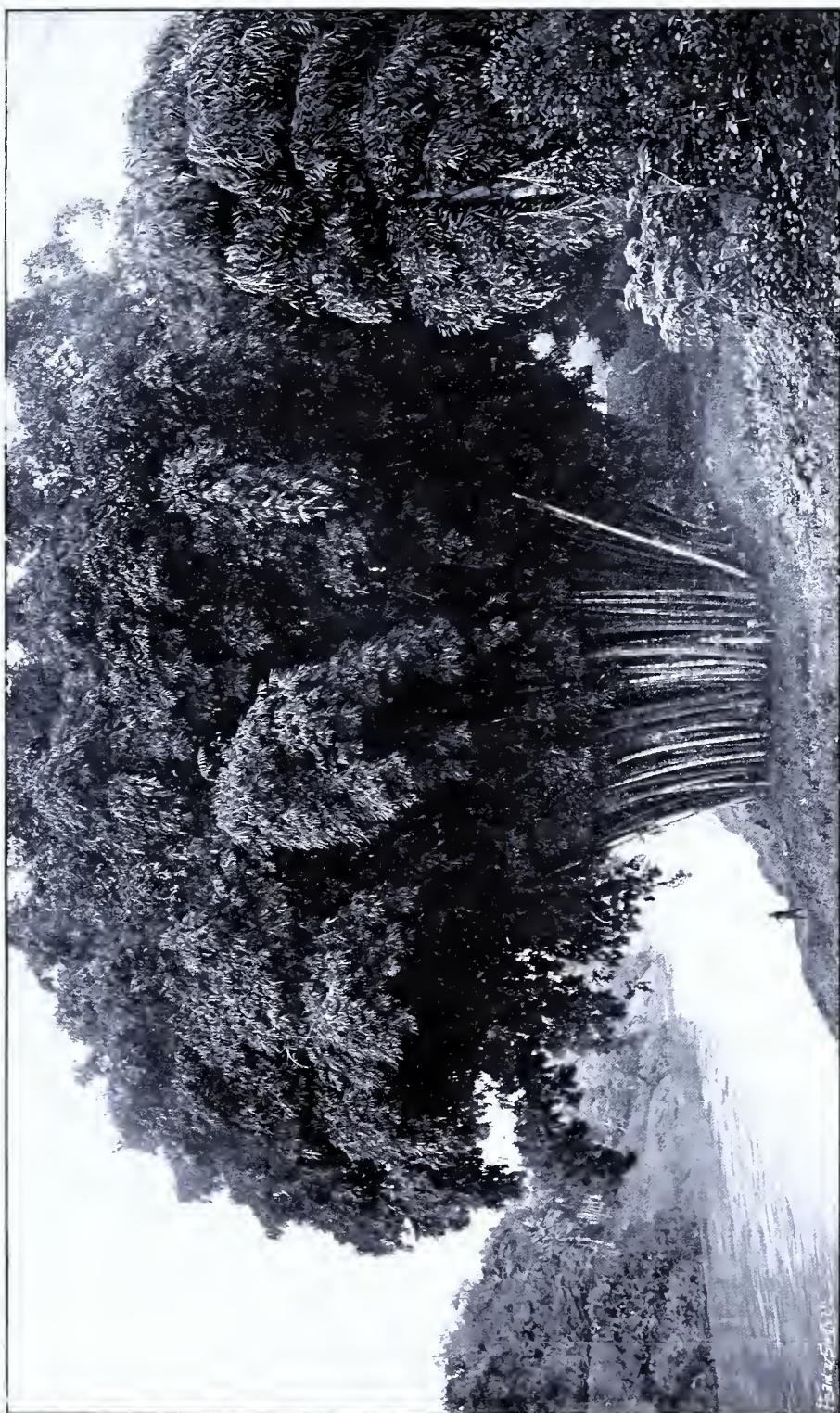
HALMILLA (*Berrya Ammonilla*), known as "Trincomalee wood."—A reddish-brown wood, flexible, elastic, and tough, much used for making casks for cocoanut oil. Large quantities are exported to India for the use of the Gun Carriage Factory. The wood works very clean. The tree is common in the low land of the Eastern Province, and grows to a height of 60 to 70 ft., with a diameter of 1 ft. 6 in. to 2 ft.

KUMBUK (*Terminalia glabra*).—This remarkably hard and heavy wood, in colour deep red, is found all over the low country of Ceylon, where its chief use is for making sluices in connection with irrigation works. In working it on the machines, however, it proved, for finish, fully equal to any of the woods experimented on, and, judging by the framing made during the trials, should prove useful for joiners' work. It is used for furniture as a substitute for teak, and when variegated in colour as a substitute for calamannder. The ash contains a large percentage of lime and is used for chewing with betel. Probably the hardness of the timber, which would make it difficult to work by hand, is the cause of its being so little used in Ceylon.

Reference should be made also to the forest trees from whose seeds oils of much local value are extracted, such as ILLUPAI or MI (*Bassia longifolia*), KEKUNA (*Aleurites trifolia*), KON (*Schleichera trijuga*), MARGOSA (*Azadirachta indica*), and PALU (*Mimusops hexandra*). Oils from these trees have been tested by a well-known expert and all favourably reported on ; the development of trade is limited only by the local supply being little in excess of local requirements. Specimens are exhibited in Class 41.

The three palms, the COCOANUT, PALMYRA, and KITUL furnish very durable and handsome wood for use as rafters or as troughs for water channels, and have an infinity of uses in the daily life of the villagers. Some handsome shafts of these trees are shown in the Court.

BAMBOOS also, of many varieties, some of enormous size, are found everywhere and are put to many uses.



GROUP OF BAMBOOS.

Photo by W. L. H. Sleath & Co.

BAMBOOS.



Some of the flowering trees are majestic in their resplendent colouring, such as the *Ná, Lagerstræmia Flos-Reginæ* (Muruta), *Cassia fistula*, *Butea frondosa*, &c.

Finally, the sacred tree of Buddhism, the BÓ-TREE (*Ficus religiosa*) is found everywhere and is tended with devout worship, and under a Bó-tree in every village is a pretty village shrine. The famous Bó-tree at Anuradhapura was planted by the Priestess Sangamitta in the year 306 B.C., and is the oldest tree of which an authentic record exists.

*Conifers* and *Wattles* have been acclimatised in Nuwara Eliya and throughout the mountains; while *Acacia*, *Albizia*, *Eucalyptus*, and *Grevillea* have been introduced and grow well on tea estates, where they are used for firewood.

Specimens of the *creepers*, *liana*, and *jungle ropes*, which present so extraordinary an appearance in a tropical forest, are shown in the central space, which has been fitted up to display some of the Fauna of Ceylon.

The gateway of ebony with cocoanut-wood panelling carved in high relief is an exact imitation of the carved stone gateway in an ancient ruin at Yapahu : the panelling on the walls contains excellent specimens of most of the best woods, and many of the show cases, cabinets, and carved stands show the timbers of Ceylon carved by native workmen after native designs.

### CEYLON GOVERNMENT.

1. <i>Aeronychia Iaurifolia</i> . An-kenda. (W. 83.)	16. <i>Anisophyllea zeylanica</i> . We-lipenna. (W. 14.)
2. <i>Actinodaphne speciosa</i> . (Hg. 47.)	17. <i>Antiaris innoxia</i> . Riti. (C. 56.)
3. <i>Adenanthera pavonina</i> . Ma-datiya, S. Manchadi, T. (E. 33.)	18. <i>Aporosa latifolia</i> . Ma-put-Kebella. (C. 13.)
4. <i>Adina cordifolia</i> . Kolon. (N.C. 49.)	19. <i>Aporosa Lindleyana</i> . Barawa-embilla. (C. 21.)
5. <i>Ægle Marmelos</i> .* Beli, S. Vilva-patri. T. (N. 55.)	20. <i>Artobotrys zeylanicus</i> . Ya-kada-wel. (Hn. 12.)
6. <i>Aglaia Roxburghiana</i> . Kanna-kombu. (E. 78.)	21. <i>Artocarpus integrifolia</i> .* Kos. (W. 29.)
7. <i>Agrostistachys indica</i> . (C. 100.)	22. <i>Artocarpus nobilis</i> . Del. (C. 32.)
8. <i>Ailanthus malabarica</i> . (Hn. 2.)	23. <i>Atalantia Missionis</i> . Pam-buru, S. Kurundu, T. (E. 69.)
9. <i>Alangium Lamarckii</i> . Kal-an-ninchil. (N. 57.)	24. <i>Atalantia monophylla</i> . Pe-rum Kurundu. (N. 99.)
10. <i>Albizzia amara</i> . Uyil. (N. 44.)	25. <i>Azadiracta indica</i> . Kohom-ba, S. Vempu, T. (E. 40.)
11. <i>Albizzia odoratissima</i> . Su-riyamara, Hurihi. (W. 86.)	26. <i>Barringtonia acutangula</i> . Ela-midella, S. Adampu, T. (N. 109.)
12. <i>Albizzia stipulata</i> . Kabal-mara. (C. 51.)	27. <i>Bassia fulva</i> . Wana-mi. (W. 103.)
13. <i>Allæanthus zeylanicus</i> . Al-lan-du. (C. 66.)	28. <i>Bassia longifolia</i> . Mi, S. Il-lupai, T. (E. 4.)
14. <i>Allophylus zeylanicus</i> . (C. 74.)	29. <i>Bassia nerifolia</i> . Gan-mi. (C. 71.)
15. <i>Alstonia scholaris</i> . Ruk-at-tana, S. Enimpalai, T. (E. 34.)	

30. *Bauhinia racemosa*. Atti. (E. 50.)

31. *Bauhinia tomentosa*. Petan, S. Tiruvatti, T. (E. 18.)

32. *Berrya Ammonilla*. Halmilla, S. Katamanakku, T. (E. 73.) Trineomalee wood.

33. *Bridelia Moonii*. Pat-Kala. (W. 52.)

34. *Bridelia retusa*. Kéta-Kala. (C. 10.)

35. *Butea frondosa*. Parasu. (N. 41.)

36. *Callicarpa lanata*. Illa. (C. 15.)

37. *Calophyllum bracteatum*. Wau-Kina. (W. 68.)

38. *Calophyllum Burmanni*. Sur-repunmai. (E. 43.)

39. *Calophyllum Inophyllum*. Domba, S. Thommakottai, T. (E. 17.)

40. *Calophyllum tomentosum*. Gru-kuina. (C. 75.)

41. *Calophyllum trapezifolium*. (C. 97.)

42. *Calophyllum Walkeri*. Kina. (Hg. 69.)

43. *Campnosperma zeylanicum*. Aridda. (W. 21.)

44. *Canarium zeylanicum*. Ké-kuna, S. Pakkilipal, T. (E. 32.)

44a. *Canthium didymum*. Panu-karawu. (C. 72.)

45. *Canthium montanum*. (Hg. 65.)

46. *Canthium parviflorum*. Karai. (E. 62.)

47. *Carallia integriflora*. Da-wata. (W. 13.)

48. *Careya arborea*. Kahata. (W. 67.) Patana oak.

49. *Casearia esculenta*. Wal-waraka. S. Kakka pulai, T. (E. 17.)

50. *Cassia Fistula*. Ehela, S. Tirukkondel, T. (E. 81.)

51. *Cassia marginata*. Ratu-wa, S. Vakai, T. (E. 64.)

52. *Cassia siamea*. Wá. (C. 64.)

53. *Celtis cinnamomea*. Gurenda. (C. 55.)

54. *Celtis Wightii*. Meditella. (C. 45.)

55. *Chartocarpus castanocarpus*. Héloka. (W. 42.)

56. *Chickrassia tabularis*. Kun-lankik, S. Kal-otthi, T. (E. 1.) Chittagong wood.

57. *Chloroxylon Swietenia*. Bu-ruta, S. Mutirai, T. (N. 2.) Satin-wood.

58. *Chrysophyllum Roxburghii*. Lawulu. (Hn. 20.)

59. *Cinnamomum litseaefolium*. (Hg. 42.)

60. *Cinnamomum zeylanicum*. Kurundu. (W. 105.) Cinnamon.

61. *Cipadessa fruticosa*. Hal-bem-biya. (C. 62.)

62. *Cleidion javanicum*. Okuru. (C. 57.)

63. *Cleistanthus pallidus*. Visa. (E. 20.)

64. *Cordia Myxa*. Lolu, S. Naravilli, T. (E. 59.)

65. *Crataeva Roxburghii*. Lanu-warana, S. Mavalingu, T. (E. 75.)

66. *Croton oblongifolium*. Millaku-nari. (E. 6.)

67. *Cullenia excelsa*. Katuboda. (W. 11.)

68. *Cyathocalyx zeylanicus*. Ipeta. (W. 77.)

69. *Cynometra ramiflora*. Gal-mendora, S. Attu-katupulli, T. (E. 93.)

70. *Dalbergia frondosa*. Veluru-va. (N. 59.)

71. *Dialium ovoideum*. Gal-siyambala, S. Katapulli, T. (E. 2.)

72. *Dichopsis grandis*. Kirihembiliya. (W. 73.)

73. *Dichrostachys cinerea*. Andara, S. Veduthal, T. (N. 45.)

74. *Dillenia retusa*. Godapara. (W. 3.)

75. *Dinorphocalyx glabellus*. Ta-intukki. (E. 36.)

76. *Diospyros crumenata*. Che-mel-panichai or Kurumpanichehai, T. Hampanella, S. (E. 30.)

77. *Diospyros Ebenum*. Kalawa-ra, S. Karmikali, T. (N. 3, N.C. 78.) Ebony.

78. *Diospyros Embryopteris*. Tim-biri, S. Panichai, T. (E. 29.)

79. *Diospyros insignis*. Poruwamara. (W. 26.)

80. *Diospyros montana*. Katu-kena, T. Sudu Kaluwara, S. (N. 38.)

81. *Diospyros oocarpa*. Vellai-karunkali. (E. 23.)

82. *Diospyros ovalifolia*. Vedukunari, T. Habara, S. (E. 22.)

83. *Diospyros quasita*. Kalu-médiriya. (W. 118.) Calamander.

84. *Diospyros Thwaitesii*. Ho-médiriya. (W. 88.)

85. *Diplospora Dalzellii*. Vella. (E. 19.)

86. *Dipterocarpus zeylanicus*.  
Hora. (W. 13.)

87. *Dodonaea viscosa*. Varal. (Hg. 89.)

88. *Doona cordifolia*. Beraliya. (W. 104.)

89. *Doona trapezifolia*. Yakahalu. (C. 76.)

90. *Elaeocarpus glandulifer*. (Hg. 43.)

91. *Erythrospermum phytolaccoides*. (Hn. 29.)

91a. *Eugenia aquae*. Wal-jambu. (C. 99.)

92. *Eugenia assimilis*. (C. 85.)

93. *Eugenia bracteata*. Pandikayan. (E. 12.)

94. *Eugenia caryophyllaea*. (Hg. 66.)

95. *Eugenia Gardneri*. Dambu, S. Nirnaval, T. (E. 9.)

96. *Eugenia Jambolanus*. Mahadan, S. Naval, T. (E. 51.)

97. *Eugenia lissophylla*. Mahakurétiya. (W. 76.)

98. *Eugenia olivifolia*. (C. 95.)

99. *Eugenia operculata*. Bata-domba. (W. 7.)

100. *Eugenia rotundifolia*. (Hg. 50.)

101. *Enodia Roxburghiana*. Luanaukenda. (C. 42.)

102. *Euonymus Walkeri*. (C. 49.)

103. *Eurya japonica*. Neya-dasse. (Hg. 35.)

104. *Ficus Iaccifera*. Kos-gona. (W. 16.)

105. *Ficus religiosa*. Bó, S. Arasu, T. (N. 144.)

106. *Ficus Tsiela*. Kal-itti. (N. 36.)

107. *Filicium decipiens*. Pehimbibiya. (W. 50.)

108. *Flacourtie Ramontchi*. Uguressa, S. Kutukali, T. (E. 63.)

109. *Flacourtie sepiaria*. Mullaminchil. (N. 56.)

110. *Garcinia Cambogia*. Goraka. (W. 12.)

111. *Garcinia spicata*. Elagokatu, S. Kokottai, T. (E. 42.)

112. *Garcinia terpnophylla*. Kokatiya. (W. 95.)

113. *Gardenia latifolia*. Galis. (W. 58.)

114. *Gelonium lanceolatum*. Pottattai. (E. 49.)

115. *Gironniera reticulata*. Wal-munamal. (C. 33.)

116. *Gleniea zeylanica*. Walmora, S. Kuma, T. (E. 46.)

117. *Glycosmis pentaphylla*. Dodan-pans. (W. 74.)

118. *Gmelina arborea*. Et-demata. (C. 9.)

119. *Gmelina asiatica*. Demata, S. Kumil, T. (E. 86.)

120. *Grewia polygama*. (N.C. 22.)

121. *Grewia tiliæfolia*. Daminiya. (W. 91.)

122. *Gyrinops Walla*. Walla. (C. 69.)

123. *Gyrocarpus Jacquinii*. Tanakkku. (E. 60.)

124. *Harpullia crenpanioides*. Pundaln. (C. 61.)

125. *Hemicyclia Gardneri*. Galwira. (N. C. 93.)

126. *Hemicyclia sepiaria*. Wira, S. Virai, T. (E. 45.)

127. *Heritiera littoralis*. Etuna, S. Chonutiri, T. (E. 85.)

128. *Holarrhena mitis*. Kiriwalla, Kirimawara. (W. 24, W. 98.)

129. *Holoptelea integrifolia*. Goda-Kirilla, S. Ayil, T. (E. 70, N. 92.)

130. *Homalanthus zeylanicum*. Liyan. (W. 82.)

131. *Hydnocarpus alpina*. Attankulai. (E. 25.)

132. *Hydnocarpus venenata*. Maknlu. (W. 65.)

133. *Ilex Wightiana*. Andun-wenna. (W. 75.)

134. *Ixora pariflora*. Maharatambala, S. Tankirai, T. (N. 82.)

135. *Ixora Thwaitesii*. Godaratmal. (N.C. 33.)

136. *Kokoona zeylanica*. Wana-potu. (C. 78.)

137. *Kurrimia zeylanica*. Uruhonda, Etheraliya. (W. 106, W. 40.)

138. *Lagerstroemia Flos-Regiae*. Muruta. (C. 63.)

139. *Leea sambucina*. Burulla. (C. 73.)

140. *Ligustrum Walkeri*. Bora. (Hg. 81.)

141. *Limonia alata*. Miladi-Kurundu. (E. 38.)

142. *Litsea fuscata*. (C. 94.)

143. *Litsea sebifera*. Bo-mi. (C. 68.)

144. *Litsea tonentosa*. Landitan. (C. 47.)

145. *Litsea zeylanica*. Kudu-dawulu. (W. 31.)

146. *Maba buxifolia*. Tuvarai. (E. 77.)

147. *Macaranga digyna*. Gal-ota.  
(W. 9.)

148. *Macaranga indica*. (C. 93.)

149. *Mallotus albus*. Bu-Kenda.  
(C. 54.)

150. *Mallotus philippensis*.  
Hampirilla. (Hn. 19.)

151. *Mallotus zeylanicus*. Mari-thinni. (N. 78.)

151a. *Mangifera zeylanica*. Et-amba. (C. 34.) Wild mango.

152. *Mastixia tetrandra*. Duju-taliya. (W. 39.)

153. *Melia dubia*. Lunu-midella.  
(C. 31.)

154. *Meliosma Arnottiana*. (Hg. 54.)

155. *Memecylon capitellatum*. Do-dan-kaha. (W. 25.)

156. *Memecylon parvifolium*. We-li-kaha. (Hg. 44, C. 101.)

157. *Memicylon rostratum*. Hin-kuretiya. (W. 45.)

158. *Memecylon umbellatum*. Ko-ra-kaha, *S.* Pandi-kayan, *T.* (E. 3,  
N. 34.)

159. *Memecylon* sp. Venkalika-yan. (E. 35.)

160. *Mesua ferrea*. Ná, *S.* Naka,  
*T.* (W. 63, N. 103.) True Ironwood  
of Ceylon.

161. *Mesua Thwaitesii*. Diya-ná.  
(W. 81.)

162. *Michelia nilagirica*. Wal-sapu. (Hg. 26.)

163. *Mimusops Elengi*. Munamal,  
*S.* Makulai, *T.* (E. 5.)

164. *Mimusops hexandra*. Palu,  
*S.* Palai, *T.* (N. 1.)

165. *Mischodion zeylanicus*. Tam-mana. (N.C. 15.)

166. *Morinda citrifolia*. Ahu, *S.*  
Manjuvenna, *T.* (E. 54.)

167. *Murraya exotica*. Etteriya.  
(N.C. 69.)

168. *Murraya Koenigii*. Karapin-cha. (N.C. 115.)

169. *Myristica Horsfieldia*. Ruk.  
(C. 33.)

170. *Myristica laurifolia*. Malaboda, *S.* Pal-manika, *T.* (E. 11.)

171. *Myrsine capitellata*. (C. 82.)

172. *Nephelium Gardneri*. Nurai.  
(N. 68.)

173. *Nephelium Longana*. Mora,  
*S.* Nurai, *T.* (E. 27.)

174. *Nothopegia Colebrookiana*.  
Bala. (C. 55.)

175. *Odina Wodier*. Hik. (N.C.  
41.)

176. *Peltophorum ferrugineum*.  
Iya-vakai. (E. 39.)

177. *Persea semecarpifolia*. Wé-warane. (N.C. 2.)

178. *Phyllanthus cyanospermus*.  
Kuliniany. (W. 48.)

179. *Phyllanthus indicus*. Kara-wu. (N.C. 73.)

180. *Phyllanthus polyphyllus*.  
Nelli. (N. 97.)

181. *Phyllanthus pycnocearpus*.  
(Hg. 76.)

182. *Pityranthe verrucosa*. Dik-wenna, *S.* Vitpanai, *T.* (E. 21.)

183. *Pleurostylia Wightii*. Siru-piyari. (E. 16.)

184. *Polyalthia longifolia*. Narai-lupai. (E. 37.) Dry country.

185. *Pometia eximia*. Gal-mora.  
(C. 37.)

186. *Pongamia glabra*. Magul-karanda. (W. 4.)

187. *Premna serratifolia*. Midi, *S.*  
Erumemullai, *T.* (E. 67.)

188. *Premna tomentosa*. Bu-seru.  
(N.C. 1.) Thari, *T.* (N. 66.)

189. *Psidium Guyava*.\* Pera, *S.*  
(Hg. 82.) Guava. [61.]

190. *Psychotria Thwaitesii*. (Hg.

191. *Pterospermum suberifolium*.  
Velanga, *S.* Vinanku, *T.* (E. 13.)

192. *Putranjiva Roxburghii*. Vit-churunai. (E. 66.)

193. *Pygeum zeylanicum*. Golu-mora. (C. 43.)

194. *Salacia reticulata*. Him-butu-wel. (N.C. 129.)

195. *Salvadora persica*. Uyai.  
(N. 121.)

196. *Samadera indica*. Samadara.  
(W. 61.)

197. *Sapindus emarginatus*. Nai-kottan. (E. 58.)

198. *Sapium indicum*. Kirima-kulu. (C. 44.)

199. *Sarcocephalus cordatus*. Bak-mi. (W. 34.)

200. *Sarcococca pruniformis*. (Hg.  
91.)

201. *Schleichera trijuga*. Kon, *S.*  
Kulu, *T.* (E. 74.) Ceylon oak.

202. *Semecarpus Gardneri*. Badulla. (C. 65.)

203. *Semecarpus nigro viridis*.  
Badulla. (W. 85.)

204. *Sideroxylon tomentosum*.  
M:lmukil. (N. 77.)

205. *Sonneratia acida*. Kirilla, *S.*  
Kinnai, *T.* (E. 100.)

205a. *Stephogyne parvifolia*. Hé-lamba, *S.* Chelembé, *T.* (E. 41.)  
 206. *Sterculia foetida*. Telambu, *S.* Katuthaingai, *T.* (E. 31.)  
 207. *Stereospermum chelonoides*. Sunumadala, *S.* Vit-patri, *T.* (E. 24.)  
 208. *Streblus asper*. Pirasu. (N.C. 19.)  
 209. *Strombosia zeylanica*. (C. 40.)  
 210. *Strychnos Nux-vomica*. Godakaduru, *S.* Kanchurai, *T.* (E. 44.)  
 211. *Strychnos potatorum*. Ingini, *S.* Tetta, *T.* Clearing nut. (N.C. 28, E. 89.) [51.]  
 212. *Symplocos bractealis*. (Hg. 72.)  
 213. *Symplocos lata*. Matawara. (Hg. 48.)  
 214. *Symplocos obtusa*. Labu. (Hg. 25.)  
 215. *Tabernæmontana dichotoma*. Divi-kaduru. (C. 67.)  
 216. *Tamarindus indica*.\* Siyambala, *S.* (W. 107.)  
 217. *Tectona grandis*.\* Tekka. (W. 49.) Teak.  
 218. *Strychnos micrantha*. Etakirindiwel. (In. 14.)  
 219. *Terminalia belerica*. Bulu. (C. 26.)  
 220. *Terminalia Catappa*.\* Kot-tamba. (W. 79.)  
 221. *Terminalia glabra*. Kum-buk, *S.* Maruta, *T.* (E. 26.)  
 222. *Terminalia parviflora*. Han-palanda. (W. 30.)  
 223. *Tetrameles nudiflora*. Ni-gunu. (E. 57.)  
 224. *Thespesia populnea*. Suriya. (W. 100.)  
 225. *Trichadenia zeylanica*. Titta. (C. 81.)  
 226. *Vaccinium Leschenaultii*. Boralu. (Hg. 88.)  
 227. *Vateria acuminata*. Hal. (C. 77.)  
 228. *Vatica obscura*. Tumpalai. (E. 28.)

229. *Vatica Roxburghiana*. Mendora. (W. 61.)  
 230. *Vitex altissima*. Milla. (C. 52.)  
 231. *Vitex Leucoxylon*. Nebedda, *S.* Minachi, *T.* (E. 56.)  
 232. *Walsura Piscidia*. Kiri-kon, *S.* Sadda-veppu, *T.* (E. 15.)  
 233. *Wendlandia Notoniana*. Ra-wan-idala. (C. 5.)  
 234. *Wormia triquetra*. Diyapara. (W. 16.)  
 235. *Wrightia angustifolia*. Vit-palai. (N. 105.)  
 236. *Wrightia tomentosa*. Pal-madankai. (E. 68.)  
 237. *Ximenia americana*. Siru-illanthai. (E. 72.)  
 238. *Nylopia parviflora*. Atu-Kétiya. (W. 33.)  
 239. *Zizyphus Jujuba*. Mahade-bar. (N.C. 129.)  
 240. *Zizyphus Enoplia*. Hin-era-miniya, *S.* Per-illanthai, *T.* (E. 71.)

Planks of the following useful or ornamental Timbers :—Tamarind, Jak, Satinwood, Ebony, Pamburu, Suriya, Sapu (*Michelia champaca*), Suriyamara, Calamander, Gal-siyambala, Dawata, Welipenna, Pehimbiya, Katukene (*Diospyros montana*), Ranai, Ubberiya, Panakka, Palu, Halmilla, and Kitnl (*Caryota urens*) (used as a panelling to the wall of the Court).

Sections (discs) of Palu, Kum-buk, Del, Hora, Mora, Mango, Pe-himbiya, Ayil, Vel-velam (*Acacia leucophloea*), Mi, Kina, Ketakela, Wá.

Pieces of stems of Cocoanut, &c.

Four Palmyra Palm stems (*Borassus flabelliformis*) from Jaffna, two of them decorticated and polished. The capitals are carved from Palmyra wood by natives.

J. P. WILLIAMS BROS., Veyangoda.—Hand specimens of 300 varieties of Ceylon Woods.

D. A. P. WEERATNE.—378 specimens of Ceylon Woods.

### (b) Tanning Substances.

A number of useful tanning barks exist in the Island, most of which are known to but a few villagers, the number employed by Colombo tanners being comparatively few.

Many are used almost entirely for tanning sail cloth and ropes and nets for fishing. The bark chiefly employed is that of the Ranawara (*Cassia auriculata*), very common in the dry, sandy parts of Ceylon. The Aralu tree (*Terminalia Chebula*) bears on its young twigs gallnuts which are valuable for tanning, and its fruits as well as those of the Bulu (*T. Belerica*) are known in commerce as myrobalams. Another species of *Terminalia*, *T. glabra*, the Kumbuk of the Sinhalese, is used by native tanners, and imparts the reddish-brown colour so peculiar to country-tanned leather.

The bark of the Kadol or Mangrove (*Rhizophora mucronata*) is much in use amongst native tanners, but when tried in Europe it is found somewhat ineffective, and is now only employed as a preliminary tan, requiring the aid of myrobalams. The fruit of the Timbiri (*Diospyros Embryopteris*) is freely used as a most useful tan for nets, and also for coating the planks of boats to preserve them from the attacks of marine animals. The only process required is to steep the half-ripe fruit in cold water for a few hours, when the preparation may be used.

The bark of the Australian "blaek wattle" (*Acacia decurrens*) has been shipped from Ceylon experimentally from trees planted on estates in the tea districts as boundaries and wind-belts. A tree stripped gives about 22 lb. dried bark. It is a question whether the value of this bark as a tanning substance will enable a price to be realized sufficient to do more than cover railway and steamer freight. In Australia the cost of carriage from the interior, where no water transport exists, is so heavy that the bark is there boiled down to a thick substance in a highly concentrated form, which of course reduces the cost of freight on the solid tanning principle. This plan may have to be adopted in Ceylon, as the tree is valuable for fuel in tea factories. Some fine specimens of the tree and bark are shown by Mr. A. J. Kellow, of Albion Estate, Nuwara Eliya. All the bark, however, which can be harvested is absorbed in the tanneries of Mr. W. D. Carolis of Colombo, whose collection of skins, leathers, and tanning materials is grouped together under Class 8<sup>9</sup>.

Mr. W. DON CAROLIS, Colombo.

*Acacia decurrens.*

Alum.

*Cassia auriculata* bark.

*Cassia fistula* bark.

Kahata bark.

Kashew bark.

Maha-dan bark.

Mangrove bark.

Myrobalams or gallnuts,

Wild cinnamon bark.

Mr. A. J. KELLOW, Albion, Nuwara Eliya.—*Acacia decurrens*: stem, bark, quill, and seed.

ASST. GOVT. AGENT, Chilaw.—A collection of Tanning barks.





WILD ELEPHANT AND YOUNG.

*Photo by A. W. A. Platé & Co.*

ELEPHANT À L'ÉTAT SAUVAGE AVEC

**(c) Resins and Gums.**

**GAMBOGE.**—Excellent gamboge is afforded by the Gokatu or Kana Goraka tree (*Garcinia Morella*). Little has been as yet done to develop this product commercially, but a consignment sent to England some years ago fetched £14. 5s. per cwt.

**HAL.**—This is a good clear white dammer resin, obtained from a handsome tree peculiar to the Island (*Vateria acuminate*).

**RATADEL.**—This gum is an exudation of the Breadfruit tree (*Artocarpus incisa*). The yield is not large, but the gum is clear, and answers well for a variety of purposes.

**HORA.**—Gum-resin, an exudation from the Hora tree (*Dipterocarpus zeylanicus*), a large tall-growing tree to be found from sea level up to an altitude of 3,000 feet.

**DOON.**—The product of the *Doona zeylanica*. This gum is colourless and of a resinous nature, and when dissolved in turpentine or spirits makes an excellent and useful varnish.

**NEEM.**—A transparent yellow gum from the Neem, or Margosa tree (*Azadirachta indica*). It is used by native practitioners as a stimulant in cases of bowel complaints: the tree itself is believed to keep off attacks of fever.

**KEKUNA.**—A fragrant gum-resin which exudes from the stem of *Canarium zeylanicum*. This is used for burning, and is believed to drive away snakes.

**GROUND RESIN** (“Bindummala”) is dug from beneath the surface of the ground, often at some depth. It is no doubt the produce of trees which have long died out, and cannot be with certainty referred to any existing species.

**CEYLON GOVERNMENT.**

From North-Central Province :— Kaju, Dummala, Vakai, Hik, Velam, Kayappu, Na, Dun,	Margosa, Wood-apple, Kolalaccada. From North-Western Province :— Satinwood, Odai,
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**Class 52.—Hunting Trophies, Horns, Tusks, Skins, &c.**

[Full particulars of these Trophies are printed in a separate List.]

This collection is believed to be the largest and best ever exhibited of Sporting Trophies from Ceylon. Most of the exhibits have been lent by their owners, and from their abnormal size, symmetry, or peculiarity, are trophies of which a sportsman may well be proud. The bulk of the trophies

are grouped together on a wall, 30 feet by 15 feet, and have been arranged by Mr. C. Thorpe of Croydon, England. Other trophies appear in the centre space in the Court allotted to the show of Ceylon Fauna, and an elephant obtained expressly for this Exhibition, with skeleton complete in every detail, was secured at an Elephant Kraal near Kurunégala in August, 1899, where it had to be killed in self-defence during the final drive into the stockade.

The groups include trophies of elephants, leopards, bear, and wild boar; wild buffaloes, sambúr, axis, and muntjak; ocelets and wild eats; peacocks; and crocodile. The collection also includes snakes—the large rock python,



AN ELEPHANT AT WORK.

the cobra-di-capello, and the dangerous tie-polonga. There are also fifteen pairs of birds peculiar only to Ceylon. A separate list is printed and can be obtained on application to the attendants in the Court, giving the names of the exhibitors—some of them famous hunters in many climes—together with the measurements and a few particulars of interest.

Mention may be made here of other interesting Natural History collections, viz., a collection of Ceylon butterflies prepared by Mr. F. M. Mackwood, a collection of land shells by Mr. O. Collett, both specially dealt with under a separate heading among the Scientific Collections at the end of this Catalogue, and a collection of marine shells prepared by the Assistant Government Agent of Trincomalee.

A few notes on the habitat of the game beasts here exhibited may be of interest. The most prominent of these

are the elephants. These huge animals are now only to be found in large herds, in the dense jungles of the Eastern and Northern districts of the Island, where they are remote from the sound of the planter's axe. From all localities where planting operations are carried on the elephant has gradually retired, putting in only an occasional appearance. The tank country between Batticaloa and the Uva mountains is still well stocked with these creatures; for although their numbers were much reduced some years ago by the depredations of Moormen hunters and their slaughter by European sportsmen, the institution by Government of a close season, and the levy of a fee of Rs. 100 for every license to shoot an elephant, have done much to augment their number, and in some of the districts in the vicinity of Hambantota and Yalé they are now quite as numerous as at any former time. Much of the country in which these creatures abound is generally unhealthy, especially that between Batticaloa and Wellassa. Probably the best elephant country at the present time is that between Hambantota and the Kumbukkan river, the boundary between the Eastern and Southern Provinces. The largest elephants are to be found in the Tamankaduwa District of the North-Central Province, where they have been shot measuring ten feet. They are also met with in good numbers in the Northern Province between Punaryn and Mannar, on the North-West coast of the Island. During the months of December, January, and February elephants as well as other animals forsake the dense jungles along the base of the Uva mountains for the comparatively open country near the Eastern seacoast, in order to escape the attacks of the large buffalo flies which abound in forests at that period of the year. Sportsmen may therefore be tolerably certain of finding herds of these animals at no great distance from the sea during the months named. From January to March, and again in August, are the healthiest times for big game shooting, as the ground has then become drier and miasma is no longer to be feared, except in very well-known localities. Native trackers are usually to be engaged at Hambantota, Batticaloa, and Trincomalee, and for a moderate remuneration will conduct sportsmen to the best ground in their respective districts. Bears (*Meiurus labiatus*) and buffaloes are to be met with in the jungles above named; the former are also found in the wild country to the North of Trincomalee as well as in the Wanni District of the North-Western Province. They are extremely shy, and are seldom if ever seen in open day. These, however, as well as leopards (*Felis pardus*), erroneously called "cheetahs" in Ceylon, can usually be shot in the very dry months by

watching for them at night, when they visit water holes or tanks. Buffaloes (*Bos Arnee*) have become very scarce owing to murrain, which has spread to them from the village cattle often to a very serious extent. From Hambantota to Potana on the East coast there is an abundance of big game. From Yalé to Potana is perhaps the best shooting ground in the country. Fine open plains extend on all sides, and deer and buffaloes are to be found in large numbers, the former about the lagoons, the latter with elephants in the jungles.

The sambúr deer (*Rusa Aristotelis*), strangely called "elk" in Ceylon, are common, especially in the hills, where they are hunted with hounds and killed with the knife.

The horns shown in this section are those of the buffalo, elk or sambúr deer, red deer (*Cervulus aureus*), and spotted deer (*Axis maculatus*). Elk and deer horns only are exported in quantity as articles of commerce, and they were shipped last year to the value of Rs. 30,000. They are brought to Colombo by native trading vessels, chiefly from the Eastern Province.

Elephant tusks are so rarely met with as to be regarded as trophies to be retained for show rather than for sale. Three pairs are shown mounted on handsome carved stands as ornaments; the largest weighs ninety pounds, but Ceylon tusks do not generally average more than sixty or seventy pounds in weight. It is calculated by sportsmen that not more than two or three per cent. of the elephants seen in Ceylon are tuskers, hence the scarcity of ivory in the Island.

Peacock (*Pavo cristatus*) are common in many parts, especially in the District of Hambantota, on the East coast of the Island, where these birds abound amongst the low scrub and open lands about the lagoons and tanks. There is no trade in the feathers, the number of male birds being limited. When young the flesh of the hen is excellent.

#### **Edible Birds' Nests.**

The edible-nest swallow, or rather swift (*Collocalia francica*), is widely distributed in Ceylon, selecting for its breeding places large dark and gloomy caverns. The nests in Ceylon are very poor in nutritive properties in comparison with those of Java, Borneo, and China, where for the "white variety" so high a value as three dollars per catty can be secured. The Ceylon nests have much less of the glutinous matter which is so prized by the Chinese. The nests are closely built together against the face of some over-hanging rock, and if one can judge by the accumulation of



BATEAUX DE PÊCHE

*Photo by Mr. H. W. Cawie.*

FISHING BOATS.



guano below them, the same nest is used frequently ; the fallen nests are often found among the refuse on the floor of the caverns where these birds build. Naturalists are still divided as to the real origin of the isinglass-like matter that enters so largely into the composition of these nests ; but the bird has on either side of the gullet two large glands, which if pressed in a bird just shot emit a viscid matter, which doubtless is the substance used in nest-building. The bird is a very insignificant-looking little creature, of a somewhat smoky colour, darker on the head, wings, and tail than on the other parts of the body. The Javan and Bornean representatives of the species are blue, but the two are said to be identical. The article is prepared for export to China by natives of that country, who pay Government a small annual sum for the exclusive privilege of collecting the nests in certain caves, chiefly in the Morawak Korale of the Southern Province : the yearly value of this article of export does not exceed four thousand rupees. The specimens exhibited—adult and young birds' nests and eggs—were presented by Mr. A. J. Kellow of Albion estate, Nuwara Eliya, within whose property are situated a series of rock caves which the birds frequent.

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### **Class 53.—Fishing Appliances and Products.**

#### **Models of Fishing Boats and Nets, and of a Pearl Fishery.— Pearls, Chanks, Coral, Beche-de-mer.**

The fisheries of Ceylon are very rich and afford a regular livelihood to half a million persons : nearly all the coasts are favoured with the visits of teeming myriads of edible fish. Apart from the shore fishing, there is a fleet of daring and skilful fishermen who fish the West coast during the North-East monsoon and the East coast during the prevalence of the heavy seas of the South-West monsoon. They have their regular stations where it is known that the harvest of the seas is ever the richest, and their skill in the management of their flimsy-looking boats marks them as brave and clever seamen. An immense variety of nets and appliances are in use—all of home materials and manufacture. The Government assist in establishing a number of curing yards along the coast, where salt—the manufacture and sale of which is a Government monopoly—is supplied at cost price. The Sinhalese fisher caste are all Roman Catholics, the Buddhists having a prejudice against the destruction of life.

Apart from the coast and deep sea fisheries, the most prominent is the *Pearl Fishery*, a Government monopoly for

fishing the shallow banks in the Gulf of Mannar. Another fishing industry is that of *Bêche-de-mer*, a large marine slug of the species *Holothuria*, of a dark brown colour, possessed of eight or ten small feet but with slight powers of locomotion, and measuring sometimes as much as two feet in length and six inches in width. The trade export, known as Trepang, is valued at some Rs. 25,000 (40,000 francs), and is sent to China, where it is consumed as a delicacy and where the best qualities realize some 3s. per pound (8 francs per kilo). Sharks' fins are exported eastward to the value of Rs. 27,000, and dried and salted fish to the value of Rs. 8,000. But the local consumption of fish, both fresh and dried, is very large.

#### Pearl Fishery.

Pearls have earned for Ceylon a world-wide celebrity from the earliest time, Ceylon itself being described by the poets as the "Pearl on the brow of India." The mode by which this beautiful object is produced by the oyster is no longer a matter of doubt. Experiments have shown that it is brought about by the efforts of the creature to rid itself of the irritation caused by the presence within its shell of some minute foreign body, which it effects by coating it with successive thin layers of the brilliant pearly matter composing the inner lining of its shell. The substance of which pearls are formed is but carbonate of lime, but its soft lustre is the result of the varied reflection of light from the silky unevenness of its surface.

Pearls are obtained from banks on the North-West coast of the Island at the entrance to the Gulf of Mannar, where fisheries have been conducted at very irregular intervals from the earliest times by the Kandyan kings, the Portuguese, the Dutch, and the British Governments. For reasons which have never been clearly defined, the presence of oysters on the pearl banks at Aripu has always been a matter concerning which no reliable information is obtainable, though the causes of their disappearance after having reached the age of two, three, and sometimes four years, are now pretty well established, as they are known to be destroyed in immense numbers by a voracious fish called the ray, or skate. When extremely young, they have sometimes disappeared from the bank in a remarkable manner, and are supposed to have been buried under shifting sands or washed away by strong currents. Long intervals have frequently occurred between fisheries, the oyster not producing fine mature pearls until its sixth year, when it is of full age. The value of a pearl

depends not merely upon its size, but on its approach to perfect rotundity and the clearness and brilliancy of its silky white colour. In seasons of scarcity, the result of few and small fisheries, fine pearls of large size will realize from £20 to £200 each, their marketable value being higher in Asiatic countries than elsewhere.

There are no records showing the results of the pearl fisheries of Ceylon during the rule of the Portuguese in this Island, which extended from the early part of the sixteenth to the middle of the seventeenth century, but of the results of the Dutch fisheries there are ample details. From these it appears that there were far longer periods of unproductiveness in that time than during British rule. Twice there were intervals of thirty years' duration in which no oysters were taken from the banks, whilst in ordinary years the value of the pearls taken ranged from £4,913 to £8,848. During three years, however, ending with 1749, the amount realized by the Dutch Government was £140,355, after which there were no valuable fisheries until the Island passed into the hands of the British; in a number of years no revenue whatever was realized. The better management of the fisheries and the greater care bestowed on the Aripu banks led to very important fisheries during the first three years of the new Administration (1796-98), when the total value of the fisheries was as much as £310,000. From that period to the year 1809 the value of the fisheries ranged from £18,696 to £57,063, whilst in 1814 it was as much as £87,045. Thenceforward there was a gradual irregular decline, to £38,207 in 1835, £23,555 in the following year, and £9,397 in 1837, after which there was a long break, extending to 1855, without fisheries. From that date to the present time the amounts realized by sixteen fisheries have reached a sum of about £488,000, after deducting the expenses attending the proceedings. The prices realized for the oysters, which are sold by public auction on the spot in lots of suitable sizes, vary considerably, according to the demand and to the size of the pearls. Thus, in 1880 twenty-five millions of oysters realized only £20,000, being at the rate of 15s. 8d. per thousand; whereas in 1888 not only was there more competition, but the oysters, being fully matured, contained larger pearls and sold at the rate of £5. 9s. 5d. per thousand. The harvest from the pearl fishery in 1888 yielded £72,425, and that of 1891 £86,375.

The shells of the pearl oyster (*Ariocula fucata*) shown are in various stages of growth from one month to six years, at which age they are considered to be mature. There are also shown in bottles examples of the young "spat," at earlier stages of life. After the sixth year the life of the

mollusc is very uncertain, though such as live to their seventh year are invariably found to contain pearls of larger size than when at the previous stage. These shells were taken from the banks off Silavatturai on the North-West coast of the Island in the ordinary course of diving operations. When burnt they make a lime which is highly prized by the natives; but, unfortunately for any chance of utilizing them, the locality of the pearl fisheries is so remote from centres of population as to render the cost of transporting them greater than their commercial value. Some years ago a quantity of these shells was shipped to England in the hope that the mother-o'-pearl lining might give them a value sufficient to leave a small profit on the transaction, but the result was a disappointment.

At Silavatturai there are vast accumulations of the débris of oyster shells, the results of many previous fisheries; and when it is remembered that in 1891 as many as forty-four million were taken up by the divers, the extent of the accumulation may be imagined, despite the decay of the shell when acted on by the weather.

*Model of a Pearl Fishing Boat.*—This exhibit was constructed under the personal supervision of Captain Donnan, Inspector of the Pearl Fisheries, by the men of his Department. The figures are the work of a Portuguese modeller, a native of Colombo, and show the correct attitudes and positions of those engaged in the work. The pearl banks of Ceylon are situated on the North-West coast of the Island, and are distant about eight or ten miles from the shore, only a portion of which is visible from the boats while fishing, so that it is necessary to note the precise locality of each bank by buoys. These fisheries occur at irregular intervals, and the number of oysters taken up is as uncertain as the occurrence of the fishery, by reason of the excessive mortality amongst young oysters and their destruction by enemies. The fishing can take place only during the very calmest period of the North-East monsoon—namely, in the months of February, March, and April—and the number of boats with their respective complements of divers and crews depends on the speculations regarding the nature of the fishery. During the months named the wind blows off the land during the night and off the sea during the day, enabling the large fleet of fishing boats to reach the pearl banks by daylight on each morning, returning with their cargoes shortly after noon. The boats are divided into two fleets—one flying red flags, the other blue—and these go out to their work on alternate days. The process of lifting the oysters by the divers is as follows:—Seated on the

edge of the boat's side, over which a heavy stone attached to a rope is hung ready to be dropped at a moment's notice, the diver places one foot on either side of it, and grasping the rope in one hand, with the other he seizes another rope to which a net is attached, and on a signal given by him the stone is detached from the gunwale of the boat and descends rapidly to the bottom, carrying the diver with it. Throwing himself flat on the ground, and relieving his net of the stone, which is at once drawn up ready for another plunge, he with his right hand gathers into the net with lightning rapidity as many of the oysters as are within his reach, until at the expiry of perhaps half a minute or a little more, he pulls the suspended rope which is held in the hand of a boatman above, who at once gives it a sudden jerk upwards, thus giving the diver sufficient impetus to regain the surface rapidly. Instances have been known of divers remaining under water a full minute, and even longer, but these are rare, and divers who have a good season for work before them do not care to overtax their staying powers by such feats. As it is, they rarely attain to old age, living to no greater age than forty or fifty years. The net and diving-stone used by the pearl fisher in the pursuit of his vocation are shown beside the model, but the rope by means of which the pearl fisher descends to the scene of his labours, the length of which depends upon the depth of the water in which the oysters are found, is not exhibited. The diver could make his descent to the pearl banks without the aid of a stone, but not nearly so rapidly as with it. So soon as the boats reach the shore their contents are removed by the boatmen and deposited in sheds, or "kottus," erected for the purpose along the beach, where they are well guarded during the night, and ordinarily sold at so much per thousand to the highest bidder on the following day. The price realized by them varies from twenty to seventy rupees the thousand, the value depending to a great extent on the average yield of a sample of five thousand lifted in the early part of the fishery. Much, however, depends on the extent of the fishery as well as on an attendance of buyers, who, when a good fishery is anticipated, flock over from India in large numbers. Attempts are sometimes made to lower the price by a combination amongst the buyers, in which case the Government officials will suspend the auction until fair offers are made, which is usually the result of firmness on their part. The process of removing the pearls from the oysters is tedious and most offensive, for the contents of the molluscs must be allowed to decay before the pearls can be detached, and as a result the stench is not only very powerful,

but occasionally detrimental to health, notwithstanding all the precautions insisted upon by the health officer in charge. As may be imagined, the crowds which are attracted by the fishery are very great, for not only are there many hundreds of pearl dealers, large and small, but there are thousands of petty traders brought there for the supply of the daily wants of the pearl merchants and the official subordinates and labourers. The desert sandy beach is at such a time covered by myriads of huts and tents, in which may be procured goods from Europe and Asia of every conceivable description, and the scene presented by this motley assemblage at night is most remarkable. Thanks to the precautions taken by the fishery authorities and the police, sickness rarely makes its appearance on these occasions, and only once has cholera broken out.

**TAMPALÁKAM PEARLS.**—This peculiarly formed pearl is obtained from oysters found in a small bay near Trincomalee, on the North-East coast of the Island, where alone they exist. Pearls from these oysters are seldom of any great value, being generally small and irregular in form and colour. The fishery is let annually for about Rs. 500.

The Tampalákam oysters (*Placuna placenta*) are different in form and texture to the true pearl oyster of the opposite coast of the Island, being flat, larger in circumference, and semi-transparent ; they are found in only one locality of limited area, and in shallower water than is the case with the pearl oyster of the Silávaitturai banks ; they arrive at maturity in about four years, and the pearls are differently formed, being usually longer and of less size than the others.

They are known amongst the Chinese as the "window oyster," from the fact that, placed over small apertures in the walls of their dwellings, the shells are made to serve the purpose of miniature windows. The exhibits shown were taken from the Tampalákam beds during last year, and, young though they are, contained a number of small pearls, which were however of little value.

**CHANKS** (*Turbinella pyrum*) are shells, with no contents of value, sought for by reason of the uses to which they are applied by the natives of India as personal ornaments when cut in different methods, and when perforated at one end to sound a loud note of call to temple worship. Large quantities are annually exported to Calcutta, which is their principal mart, the number collected by divers having sometimes been as great as three million and a half, but in recent years not more than half that quantity has been collected. This shell is fished for along the Northern coasts of the Island

between Point Pedro and Mullaitivu and Jaffna and Mannar, but divers on this work are not allowed to ply their calling to the southwards of Mannar, lest they should interfere with the pearl banks. The chank fishery is encouraged by the Government not merely for the royalty of one-fifth of the value of the fishery, but as a good school for divers for the valuable pearl fishery. The demand for these shell ornaments amongst the Hindoos of Bengal is maintained by the prevalence of a singular caste custom which enjoins the relatives and friends of a deceased person attending a funeral to break all their ornaments as a mark of regard, the master of the house being obliged by custom to replace them. The value of the exports in 1898 exceeded a lac of rupees.

**MODELS OF BOATS.**—The models of boats comprise ferry boats, canoes, catamarans, and ballams.



AN OUTRIGGER CANOE.

The first-named are usually for foot passengers across streams, either two small hollowed-out trees lashed together, or one large ballam capable of containing a dozen persons. Catamarans are the rudest and most primitive of any description of craft, as may be seen by the model of one in use for the conveyance of Her Majesty's mails across the narrow strait which separates the North of Ceylon from the South coast of India. They are extremely safe, and being composed of very light wood cannot be sunk, though frequently overturned in the breakers. Only once during many years have the mail bags been lost, even in the most stormy weather. The model of a trading dhony with its attendant ballam is exhibited, and gives an excellent representation of the craft which performs the coast carrying trade of the Island. They are nearly all built on the South coast of the Island, whilst square-rigged country craft are built in the small ports of the North. They vary in size from about twenty

to seventy tons burthen, and cost from Rs. 25 to Rs. 40 per ton; square-rigged vessels average 60 tons and cost Rs. 80 to Rs. 100 per ton. The square-rigged vessels are owned by Moormen chiefly; the dhonies are mainly the property of Sinhalese, who work them in shares with the crew, much in the same way as prevails with regard to fishing boats in the North of England and Scotland. The owner receives one-third of the vessel's earnings, the remaining two-thirds being divided in certain well-defined shares between the tindal, or commander, and crew, the former's share being twice that of each of the other's. Eight to fifteen men compose the crew of a dhony, according to its tonnage, and they are mostly relatives or connections of the owner and belong to the same village. These simply-constructed and carefully-navigated craft carry on a considerable coasting trade during the fine weather of the North-East monsoon, when land and sea breezes alternate day and night, enabling them to make their way slowly but securely from the Northern districts of the Island, laden with coral, to the South-West coast, returning with cargoes of European or Indian commodities. In this way they will perform generally three or four trips during each North-East monsoon, being laid up on the beach for repairs and refitting during the boisterous weather prevalent in the South-West monsoon. They are essentially fine-weather craft. Their rigging is entirely of country-made coir rope, their sails of home-grown, home-spun cotton, and their hulls of a light but rather durable wood, the planks and keel containing no metal nails, the entire fabric being held firmly together by means of wooden pegs and coir yarn, the seams of the planks and decks being coated with indigenous resin, whilst the hull is usually scraped and anointed with a blend of lime and an oil specially obnoxious to marine animals.

**CORALS.**—The ordinary coral of the Jaffna coasts forms a rather important article of trade among the fisher class, being taken in considerable quantities to Colombo and Galle by the native craft called dhonies at a trifling rate of freight, and there sold to lime-burners, the product of the kiln being more highly prized than that made from the limestone of the country, and second only to that made from marine shells.

Small quantities of red coral, apparently identical with the Mediterranean and Cape Verde species (*Corallium nobile*), have been found on reefs a short distance from the South-East coast of Ceylon, never on the West or North sides of the Island, but in such small fragments as to be of trifling value.

#### CEYLON GOVERNMENT.

Models of:—1. Ballam, or fishing-boat, of Northern Province, fitted for diving, either for Pearl Fishery or Chank Fishery.

2. Fishing boat used by Sinhalese on the West coast.
3. Catamaran, or raft of logs tied together, in general use in the Northern Province.
4. Double canoe used by Sinhalese on rivers and in very calm weather on sea.
5. Dhony, a sea boat with outrigger of large size, used in trade to coast of India and on Ceylon coast.
6. Oruwa, fishing canoe, with outrigger, used on sea and rivers, remarkable for safety in bad weather, and very fast sailer.
7. Paruwa, or padda boat, used for transport of goods by river and canal.
8. Model of pearl fishing ballam showing the divers in the operation of collecting pearls, and many smaller models.
9. Collection of pearl oyster shells at various stages of growth, viz., one, three, six, nine months, one year, two, three, four, four-and-a-half, and five-and-a-half years old.
10. Specimens of Tampalákam

Lake pearl oysters (*Placuna placenta*) from near Trincomalee.

11. A large box divided into compartments, containing :—Specimens of live (when fished) chank shells and dead ones (when dug out) of the five sizes or sorts. Model of the brass gauge used in the Customs, Jaffna, for sizing the chanks. Small chank shells. Blowing chanks, one carved and polished, another fitted with a mouthpiece. Blowing chank mounted in brass and used in a temple. Bangles and rings made from chank shells. Beads made from chank shells. A small right-handed chank mounted in silver : the lid of the box bears a long descriptive label. Also a Map of the Northern portion of Ceylon showing the parts of the coast where live chanks are fished and dead ones dug out, and figures of the probe and hook used in the latter process.

12. *Bêche-de-mer*, or sea slug (Trepang).



A RIVER FERRY.

**GROUP X.—FOOD PRODUCTS.****Class 56.—Farinaceous Products.**

ARROWROOT (*Maranta arundinacea*).—East Indian arrowroot, although of good quality generally, is not usually esteemed as highly as that made in the West Indies, where Bermuda arrowroot has long taken the lead amongst nutritive starches. Small parcels of Ceylon arrowroot have, however, been valued very highly in the London markets, but the demand for the article has never been such as to lead to any extended cultivation, and all that is produced in the Island of this and the starches named below is for local consumption.

CASSAVA (*Manihot utilissima*).—This flour is the produce of the tubers of a tall plant which grows very readily in any light soil : originally introduced into the East from South America, it appears to have been thoroughly acclimatised, but refuses to yield successive crops on the same ground year after year without the aid of manure. The root partially dried and scraped is found to yield a fine flour, which when sun-dried forms a most nutritious diet, and in the unprepared state the roots are eagerly devoured by cattle. This cultivation has been largely extended in the maritime provinces, but the whole produce is taken for local consumption, none finding its way to the export market. During the recent extensions in the North-Western Province of the area under cocoanut cultivation enormous crops of cassava were raised during the first and second years after the land was cleared. Native planters succeeded by raising crops of cassava for two years and of plantains for the next three years in recouping themselves for the cost of clearing, fencing, and planting the lands with cocoanuts, leaving the property with the cocoanuts established. This procedure tends through exhaustion of the soil to delay the first crop of cocoanuts from the eighth to the tenth year, but it also enables planters of small capital to make plantations at very little initial outlay.

PLANTAIN or BANANA FLOUR (*Musa sapictum*).—Since Mr. H. Stanley drew attention to the value of plantain flour as an article of food, many attempts have been made to place it on the market, and there is little doubt that when its nutritive and digestive properties come to be duly appreciated, it will command a price which will make the preparation of the flour remunerative to growers. This fruit is grown and consumed in enormous quantities ; there

STREET SCENE, COLOMBO.

*Photo by the Colombo Apothecaries' Company.*

RUE À COLOMBO.





must be 40,000 acres (16 hectares) under cultivation, and the yield is very heavy per acre.

KITUL and TALIPOT FLOUR are obtained from the pith of *Caryota urens* and *Corypha umbraculifera*, respectively : BREADFRUIT FLOUR is prepared from the desiccated pulp of *Artocarpus incisa* : HAL FLOUR is made from the seeds of *Vateria acuminata* (the hal tree which produces the copal resin) : BERALIYA FLOUR is made from the seeds of *Doona*



NATIVE LIFE IN THE LOW COUNTRY.

*cordifolia* : KURAKKAN from the seeds of *Eleusine coracana* : COCOANUT FLOUR from the "cabbage" or bud of the cocoanut palm (*Cocos nucifera*).

Mrs. A. DIAS.—Arrowroot.

Mr. W. D. CAROLIS.—Cassava, Tapioca, Plantain (Banana).

THE GOVT. AGENT, Ratnapura.—Kitul, Talipot, Cassava, Breadfruit, Hal, Beraliya, Kurakkam, and Cocoanut Flour.

Mr. CHAS. STOUTER.—Plantain Flour.

### Class 59.—Sugar and Confectionery : Condiments and Relishes.

#### (a) Sugar and Jaggery.

CANE SUGAR (*Saccharum officinarum*) is cultivated near Galle and at Baddegama and in the environs of Colombo ; but Galle is the only locality in which the article is produced in any large quantity. Sixty years ago the cane was extensively cultivated in the Vale of Dumbara, near Kandy, but

although a success as regards the supply of local demand, it never became an article of export, as the granulation being imperfect it could not endure a voyage to Europe without serious loss in drainage. The cane was afterwards grown at Pérádeniya, at Katukande, and some other places in the low country, but the industry was eventually abandoned as profitless, and at the present time the Messrs. Winter and Jayasinghe Mndaliyar are the sole makers, having command of the local market for soft sugar, crystallized sorts being imported. It should be remarked that several varieties of sugar cane are extensively grown by natives, especially near the towns, the cut joints being a favourite article of food. The cane grows well when cultivated, and there seems theoretically little reason why with cheap labour and a suitable soil Ceylon should not at least supply itself with sugar in lieu of importing it to the value of Rs. 3,358,776 = 5,374,042 francs, yearly.

JAGGERY, a coarse description of sugar, is manufactured from the sap of the Palmyra palm (*Borrassus Jlabelli-formis*). Over 2,235 cwt. (value Rs. 7,387 = 13,416 francs) were exported from the Northern Province of the Island during the past year. The trade in jaggery might be made of great importance, there being at present an active demand from Europe. The home consumption is very large. Jaggery is also largely made from the sap of the Kitul palm (*Caryota urens*).

#### (b) PRESERVES AND PICKLES. CURRY STUFFS.

GRAPE JAM is made from Jaffna-grown grapes boiled in syrup, the seeds being removed during the boiling; one pound of grapes to one pound of sugar in a pint of pure water is the proportion in which it is prepared. The jam keeps a long time if preserved in air-tight bottles. The average price of a pound of grapes in Jaffna is 30 cents.

MANGO JAM is prepared by boiling the mango in syrup after removing the skins and stones, and the sour juice squeezed out by the free use of forks, and soaking in fresh water; one pound of mango to one pound of sugar is the proportion in which it is prepared. The average price of a pound of mango is 3 cents.

BILIMBI JAM.—This jam is made by removing nearly three-fourths of the juice of the fruits of *Averrhoa Bilimbi*, by the use of forks, and soaking in fresh water, squeezing the fruit and boiling them in syrup. The cost of 100 fruit is about 3 cents, and the proportion of sugar used is similar to that used with mangoes.

**NELLI JAM.**—This jam is prepared by soaking the fruit of *Phyllanthus Emblica* in pure water and boiling the juice in syrup; the proportion of sugar and fruit is the same as that with mangoes. The cost of 100 fruit is about 6 cents.

**CITRON and LIME PICKLES.**—Citrons and limes in both the Northern and Western Provinces are first cut into four parts, with one end kept to hold them together, salt inserted, then dried for some time. The Brahmins use curry stuffs and the sediment of the lime juice for preserving it, whilst others use vinegar.

**MANGO PICKLE.**—Well-matured but not ripe mangoes are cut lengthwise in halves, and the kernel of the seed is removed. The pieces being washed and salted for a day or two, the space occupied by the kernel is filled up with a preparation of well-chopped papaw fruit, garlic, onion, chilly mixed with ground mustard and vinegar, and the two halves are brought together and tied up and put into a large-mouthed bottle or jar filled with vinegar; after remaining so for a week the pickle is fit for use.

Other preserves exhibited are those made from the pericarp of the nutmeg (*Myristica fragrans*), the fruit of the jambu (*Eugenia malaccensis*), pathola (*Trichosanthes anguina*), papaw (*Carica papaya*), pineapple (*Ananas sativum*).

**TAMARIND**—which is an important ingredient as an acid in Eastern cookery—is the pulp from the fruit of *Tamarindus indicus*; it is frequently prepared as a “chutney,” in which form it is exhibited.

**GEORGE PONAM MUDLEY.**—Chutneys, Pickles, Preserves, &c.

**P. MOHIDEEN SAIBO.**—Curry Powder.

**K. ABRAHAM PERERA.**—Tamarind Chutney.

**M. ALI KHAN.**—Preserves.

### (c) Spices.

**(1.) CINNAMON** (*Cinnamomum zeylanicum*).—This spice was a commercial object with the first European settlers in the Island, the Portuguese; and when the maritime provinces of Ceylon fell into the hands of the Dutch they too lost no opportunity of extending the trade by the cultivation of the plant on a large and improved basis. The cultivation was made a Government monopoly jealously guarded. The cinnamon peelers—who form a separate caste and whose physique and features differentiate them from the other Sinhalese castes—were organized on a semi-military basis under a Capitan Mudaliyar and were given special privileges and exemptions. Their employment in the jungle exposed

them to attack by forays from the Kandyan country ; so strong forts and outposts were established for their protection. Whenever the crop exceeded the estimated requirements of Europe, the officials of the Cinnamon Department destroyed the excess by fire rather than incur the risk of lowering the price in the Dutch market by placing an excessive quantity before the buyers. The British, who became masters of the Island in the later years of the last century, were equally solicitous regarding a trade which was capable of yielding such large returns. In the early part of the present century, and down to about 1840, the first quality of this spice commanded as much as eight shillings a pound, second sorts selling for six shillings. Until 1833 the cultivation and trade in cinnamon remained vested solely in the Government, who maintained a large and costly establishment under highly paid European supervision for the proper care of the fine plantations which yielded the eight thousand bales which then formed the total export of the spice. In the year above named the monopoly was abandoned, and the Government sold off their large stocks of the spice as well as their gardens, which have since been cultivated by private individuals. Larger crops and competition with inferior spice from the Malabar coast and China (where an inferior quality of cassia bark is exported to the extent of eleven million pounds) have gradually lowered the value in the home markets, and the best Ceylon cinnamon is now selling at a little more than a shilling a pound, so that only very well cultivated and carefully managed properties yield an income to the proprietors. Spain is a large consumer of cinnamon for use as incense, for flavouring drinks, and for making chocolate creams. An inferior description of this spice is shipped under the name of "chips," being the cuttings from imperfectly-grown cinnamon branches. The exports of these two kinds are shown by the figures below :—

Bales.	Chips. lb.	Oil. oz.	Leaf Oil. oz.	Declared value.
1898 ... 2,725,405 ...	1,555,760 ...	77,796 ...	94,720 ...	Rs. 2,498,672 (f. 4,077,875)

Cinnamon grows best near the coast in a soil of snowy-white sand consisting of almost pure silica. The area under cultivation is about 43,500 acres, mainly in the Negombo District, but largely also in the Colombo District, and to a less extent in Kalutara, Galle, Matara, and Kégalla.

Chips are largely used in the manufacture of Thorley's food for cattle, as well as in perfumery and in the distillation of cinnamon oil, a good deal of which is also made in the Island. The current value of cinnamon is now about

1s. 3d. for first quality, 9d. to 11d. for second sorts, and 6d. to 8d. per pound for third quality. The recent Customs regulations now require exporters to mark cinnamon collected from wild trees as " wild cinnamon."

Messrs. DARLEY, BUTLER & Co., Colombo.

Mr. JACOB DE MEL, Colombo.

Dr. W. H. DE SILVA, Colombo.

Mr. A. MENDIS, Colombo.

Mr. J. W. C. DE SOYSA, J.P., Colombo.

Messrs. MURDOCH, BRAM. WELL & Co., Colombo.

Mr. TUDOR RAJAPAKSE, J.P., Colombo.

(2.) CARDAMOMS (*Elettaria cardamomum*).—This aromatic product, known as the "Seed of Paradise," is the seed of a reed-like plant, growing abundantly in the hill districts of Travancore, Malabar, Coorg, and Munzerabad : it is grown also in Siam, Java, and Madagascar. But even as long ago as the middle of the 17th century Ribeiro extolled the great superiority of the Kandyan variety. It belongs to the natural order of Gingers (*Zingiberaceæ*), and is a little like the flag ; found along the banks of rivers in Europe ; and if one can imagine these as growing in clusters like sheaves of corn, seven to eight feet apart and from eight to twelve feet high, with spreading umbrageous tops, beneath open forest, a good idea of a cardamom plantation can be formed. The flowers and fruit-capsules appear on racemes which spring from the base of each stem (rhizome), the former being a creamy white with deep pink markings. In Ceylon there are two kinds of the cultivated plant: the ordinary Malabar kind, which throws out its racemes horizontally over the surface of the ground, and was at first the kind most usually grown ; and the Allepey (commonly called the Mysore) kind, which has upright racemes, is very robust in growth, and not so particular in its requirements as the Malabar, standing drought and a high altitude better. It is not, however, so productive as the Malabar is when under thoroughly suitable circumstances. There is also a native Ceylon variety of the plant with the capsules much longer, but this is not cultivated, though the Sinhalese gather the capsules in the jungles and prepare them without any special care for exportation. Upon plantations in Ceylon the seed-capsules are usually severed by coolies with scissors or by hand. They are then spread out in trays and slowly dried, and when this is complete they are bleached ; this, with packing, finishes the operation, the chief aims always being to prepare them without splitting the capsule and to have them of a whitish straw colour, full and solid. It is usual to despatch the capsules half dried, to be dried, cured, and packed in

Colombo. If gathered immature, the seeds are of a light colour, and the general appearance is termed by the trade "lean." The market is a variable one, the consumption being limited, so that one large and successful clearing may influence the price. India, where fully one-half of the crop is absorbed, is a great consumer of the spice for cooking and masticating purposes.

The export in 1898 was 546,409 lb., valued at the Customs at Rs. 976,809 = 1,562,894 francs. The gardens are situated in the valleys around Kandy at an elevation of 1,500 to 3,000 feet (500 to 1,000 mètres) in a damp climate and in a rich soil. The official returns show the area under cultivation to be 5,153 acres (2,000 hectares), but this is probably below the mark, as the plant is grown freely in the gardens of every village near Kandy.

Mr. W. D. CAROLIS, Colombo, Messrs. DARLEY, BUTLER & Co, Colombo.	Mr. J. A. SPENCE, Duckwari, Rangalla.
Mr. GEORGE RAMSAY, Galahatene, Galaha.	Mr. J. WESTLAND, Mousa- kanda, Matale.—5 lb. fine Carda- mons and 5 lb. of Cardamom Seed.

(3.) NUTMEGS and MACE (*Myristica fragrans*).—This well-known spice is not largely produced, but the soil and climate of the Kelani Valley seem well suited for the purpose. It is grown in the low country and in the Kandyan districts, at altitudes ranging from a thousand to eighteen hundred feet, chiefly by natives.

Dr. V. DUKE, Doranakanda Estate, Avisawella.	Mr. J. H. BARBER, The Grove, Ukuwella.
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(4.) CLOVES (*Eugenia caryophyllata*).—These are produced to even a more limited extent than the previously named spice. The tree thrives in similar localities to the nutmeg, and is highly ornamental. They both come into bearing when about seven years old, and continue to give crops for half a century, as may be seen in the case of trees yielding fruit at that age in the vicinity of Colombo and in Pérádeniya Botanic Gardens. In 1898 the value of cloves, mace, and nutmegs exported was Rs. 7,622 or 12,295 francs.

(5.) PEPPER.—Black Pepper (*Piper nigrum*) is commonly grown by the natives, but has not yet been exported in any quantities. The area under cultivation is increasing.

Mr. J. H. BARBER, The Grove, Ukuwella.	Mr. F. WINDUS, Coodoo- galla, Rambukkana.
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(6.) VANILLA (*Vanilla planifolia*).—This delicately flavoured and perfumed product is the fruit of a climbing orchid which thrives only in rich moist ground and under somewhat lofty shade. The flowers usually appear during

the hot dry months of the North-East monsoon, from January to April, and fruit well in the vicinity of Kandy ; with care the plant has borne fruit also in the neighbourhood of Colombo. The flowers have to be fertilised by hand, vanilla being a native of Mexico, and Ceylon bees and other insects being unable to accomplish the task. The pods mature about the commencement of the following North-East monsoon, and continue to increase in size and ripeness until about January. They are gathered when they begin to show an orange tinge, and are then air-dried with cotton wool round them to prevent them splitting open with the action of the hot noon air. The cultivation of vanilla has been pressed on the attention of planters for more than thirty years, but never much taken up, though there is no reason why it should not prove highly successful.

The export of vanilla in 1898 was  $328\frac{1}{2}$  lb., valued at Rs. 953 or 1,524 francs.

**THE ANGLO-CEYLON ESTATES CO., KONDESAL, DUMBARA VALLEY.**

Mr. G. A. VAN DER POORTEN, J.P., Greenwood, Galagedara.  
Mr. W. H. WRIGHT, Mirigama.

### **Class 61.—Spirits.**

#### **Arrack.**

Arrack, which is a delicate wholesome spirit obtained by double distillation from the sap of the cocoanut, is made at various places along the South-Western coast of Ceylon. Regularly licensed stills are established for the manufacture of this spirit, which is in general use amongst the native population of the Island, as well as exported to the Madras Presidency under private contract for the supply of the native troops of the Madras army. The mode of preparation is here described, and is illustrated by the model of an arrack still.

The first steps of the intending distiller is to select the site of his distillery, which he determines chiefly with regard to the facility for securing on lease for the year a suitable number of cocoanut trees varying from eight hundred to a thousand, in the immediate vicinity. He then, after having erected his building and apparatus, which consists of a still varying in capacity from 150 to 200 gallons with its appurtenant vats, &c., submits the same to the approval of the headman of the district, who, if the requirements of the law are fulfilled by the nature of the preparations made, and no other objection to the issue of a license exists, grants him a certificate to that effect on behalf of the Government, and

upon the production of this certificate at the Kachcheri, or Revenue office, accompanied by a fee of Rs. 100, a license to keep and use a single still is issued. The preparation of the trees consists in coupling as many as possible into a single group by means of a dozen strong ropes fastened near the summit of the stem and stretched from tree to tree, so as to form a bridge or footway between each tree and its neighbour, with six similar ropes about four feet higher than the twelve, which serve the purpose of a hand-rail or balustrade. This preliminary operation is performed about three weeks before it is intended to commence distillation, in order that the toddy drawers may pass with ease from tree to tree "preparing the flowers," a process which consists of beating once a day with a short but heavy wooden instrument the long spathe or sheath in which the immature flowers of the cocoanut are enfolded. Such treatment under an experienced hand has the effect in about seven days of reducing the whole flower to a pulp without breaking the sheath or envelope in which it is contained, and when this result has been attained, and the pointed end of the spathe cut off, the juice produced by this bruising of the flowers will trickle out slowly into a small earthen pot which is fastened to the end. The juice which thus falls is sweet toddy, and quickly ferments; this toddy is collected from each tree every morning and carried to the distillery, where, when the amount has reached 150 gallons (or such quantity as will fill the still), it is distilled. Every morning when the toddy drawer collects his toddy he must again cut off a thin slice from the open end of the inflorescence, which by exposure to the atmosphere would otherwise rapidly dry up or heal, and so obstruct the passage of the juice; he must do this likewise again every evening. Each toddy drawer works about 100 trees; eight or nine are therefore required for the service of each still. The first distillation produces a liquor termed "polwakara," measuring one quarter of the toddy used. It takes four repetitions of this process therefore to obtain sufficient polwakara to fill the still again. When, however, this quantity is secured, the polwakara is again distilled, and produces what is called "talwakara," or "arrack," which measures only half of the polwakara, or one-eighth of the toddy used to produce it. The strength of this polwakara varies from  $18^{\circ}$  to  $20^{\circ}$  under proof; to increase that strength the process of distillation must of course be repeated, in which case the product is termed "ispiritu" (Anglice, "spirit"). The average product of a still of 150 gallons during the eight months of distillation is usually thirty leaguers, or 4,500 gallons.

The number of distilling licenses issued ranges about 250 annually. The output is about 1,200,000 gallons, and the quantity produced from each tree is some 6 gallons.

The Government of Ceylon (which retains as a monopoly the right to sell arrack by retail) derives a large revenue from the annual sale of licenses by public auction. The purchasers, who are called renters, buy the arrack from the distillers. The distillers may sell their spirits wholesale only, the removal from their stores being carried on under Government permit. The renters purchase the arrack wholesale at as low a price as practicable (the renters having usually a controlling interest in some distilling business), and make their profit by retail sale, the rate of which is prescribed by official regulation. The revenue derived from the sale of arrack rents varies with the prosperity or depression of the staple industries. In 1899 the rents were worth over three million rupees (4,800,000 francs), which is the largest amount on record.



A WAYSIDE BOUTIQUE.

The renters are interested in having as many arrack shops in each district as possible, as encouraging the sale of their spirits, but Government, though desirous of obtaining a good revenue from this source, places restrictions on the number. The number of these "taverns" licensed throughout the Island was in 1869 as many as 1,494, but it is now reduced to 947, or one to every 3,300 of the population.

The price of arrack wholesale from the distillers is about one rupee per gallon. The retail price is fixed by law at a minimum rate of Rs. 4 $\frac{1}{2}$  per gallon, but in practice the rate by the glass works out to some seven rupees per gallon. The consumption exceeds one million gallons, giving the Government a profit of three rupees per gallon; the difference between that sum plus the cost of buying the arrack representing the gross receipts of the arrack renter.

The exhibits comprise the various products in the process of distillation, and of liquor 41 years old possessing a remarkably delicate flavour. It was old spirit of this kind which

half a century ago formed the basis of "Rack Punch." The ordinary arrack of Ceylon, which is extremely pure, should offer inducement to British distillers in replacement of much of the present material employed in the distillation of inferior brandy and whiskey.

The quantity of arrack exported—to Madras—in 1898 was 65,902 gallons, valued at Rs. 153,064 or 244,902 francs.

**Mr. ARNOLD DIAS, Panadure, Ceylon.**

Model of an Arrack Distillery : Sample of "Polwakara," the result of the first distillation ; of "Talwakara," the result of the second distillation ; Commercial Arrack, after the third distillation ; Spirit of Arrack (remarkable for its oenanthic qualities), after the fourth distillation ; special Liqueur of Arrack, forty-one years old.

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## GROUP XI.—MINING, METALLURGY.

### Class 63.—Working of Mines, Plant, Appliances, and Products.

#### (a) **Plumbago.**

The exhibits consist of plumbago, limestone, rock crystal, and mica.

IRON exists in far larger quantities than has been generally supposed, and is of excellent quality in some districts, cropping up close to the banks of rivers in huge masses of ore, which, according to the statement of a scientist, contains occasionally as much as seventy per cent. of pure metal. Owing to the alleged presence of a certain proportion of molybdenum in this ore, it is said to be very readily fused, and, as worked by Kandyan smelters in the manufacture of tools, is believed to be of as fine quality as Swedish steel. Notwithstanding the excellence of much of the ironware imported from England, a native agriculturist will in most instances prefer to work with his own home-made cattie or axe, from charcoal-smelted ore. Before the time when the entire Island passed into the possession of the British Sovereign, and a mutual trade was opened between the natives of the interior districts and English dealers in hardware, there is no doubt that the requirements of the population in the matter of agricultural and artificers' tools as well as of weapons of offence were met by the native blacksmith and the Kandyan armourer. So early even as in the time of the Portuguese they provided themselves with useful copies of the European musket, and met the invaders of their territories with weapons, the make and use of which

ELÉPHANTS

*Photo by W. L. H. Sheen & Co.*

GROUP OF ELEPHANTS.





a long period of warfare had rendered familiar to them. In many parts of the interior heaps of iron slag and charcoal ashes may still be seen, the remains of a bygone industry, and it would appear that in some localities the process of smelting by charcoal is still carried on upon a limited scale. The low price at which iron and steel ware can be imported and sold, and the lack of suitable fuel in the ironstone country, necessarily limit the local manufacture within the narrowest bounds, and the industry is practically extinct; but, were coal discovered or a portable cheap fuel invented, the Ceylon iron fields might become of importance.

PLUMBAGO, otherwise known as graphite, or popularly as "blacklead," is a nearly pure carbon, and is found distributed in great abundance in the Southern, Western, Sabaragamuwa, and North-Western Provinces, at distances from the sea ranging from five to fifty miles. The finest ore comes from pits, or, as they may properly be termed, mines, some of which are sunk to the depth of nearly one thousand feet, or more than 300 mètres, in several instances steam pumps being employed to free them from flood waters or springs. There are between 1,500 and 1,600 pits for plumbago-digging throughout the country, but it is seldom that more than one-third of these are worked at one time, the raising of the ore depending on the demand for it in the market and on the state of the weather, as the mines are not usually worked during the heavy monsoon rains. An export duty is levied on the shipment of the article, at the rate of five rupees the ton, or 25 cents per hundredweight. From very small beginnings of less than a thousand hundred-weights fifty-five years ago, the export steadily increased until in 1898 it amounted to 478,318 cwt.; the demand varying with the activity of the markets in Europe and the United States, the distribution in 1898 being as follows:—to the United States of America, 189,000 cwt.; to the United Kingdom, 169,000 cwt.; to the Continent of Europe, 118,500 cwt. (Germany and Belgium being the largest importers), the balance going to the British Colonies. The value of the plumbago exports has risen in 1898 to Rs. 7,174,770, or 11,479,632 francs, yielding a royalty to Government of Rs. 119,565 = 191,304 francs; the finest bright silvery lump at present ranging between Rs. 400 and Rs. 1,000 per ton, and the lower qualities in the form of chips and dust commanding Rs. 100 to Rs. 250 per ton. The digging for and local trade in this article are still almost entirely in the hands of Sinhalese, many of whom realize handsome incomes from the industry; but the great demand which has recently arisen has attracted European capital, and there is every

prospect of a great and speedy development of mining on a scientific basis with modern appliances and machinery. It is estimated that the various processes of mining, lifting, carting, sorting, packing, and shipping plumbago, as well as the making of the casks in which it is exported, provide employment for about sixty thousand men, women, and children. Its uses are manifold: about one-third of the exports is used in the manufacture of crucibles, one-third for stove polish, and the remaining third for lubricating purposes, for electroplating, for paint, and in the manufacture of lead pencils. This last use is one of some magnitude, especially in America and Germany. In the manufacture of lead pencils the finest graphite only is used; this, after being ground to an impalpable powder and blended with very fine clay by repeated washings, is subjected to enormous hydraulic pressure, and finally cut by machinery into very thin slices and inserted in the wooden stock of the pencil. Blasting powder is rolled in plumbago as a safeguard against damp. It forms an admirable fire-resisting paint, and is also applied to the bridges of pianos and the sides of organs, and imparts a glossy softness to felt hats. The great recent development in the demand, however, is due to its use as the finest lubricant known in the casting of war material.

The exhibits form the most perfect collection ever brought together.

**THE BATTERSEA CRUCIBLE COMPANY, Limited** (formerly known as the firm of Messrs. Morgan Bros.), Battersea, London, S.W.—(1) Trade samples of crude Plumbago; (2) Manufactured Articles, Crucibles, Pencils, Stove Polish, &c.; (3) Large lumps, weighing nearly 4 cwt., or 200 kilos; (4) An Elephant carved in plumbago.

**Messrs. CLARK, YOUNG & Co., Colombo.**—Trade samples of Plumbago.

**Messrs. DARLEY, BUTLER & Co., Colombo.**—Trade samples of Plumbago. Large lump of fine quality.

**Messrs. DELMEGE, FORSYTH & Co., Colombo.**—Trade samples of Plumbago.

**Mr. JACOB DE MEL, Colombo.**—Trade samples of Plumbago.

**Mr. L. B. A. DE SILVA, Colombo.**—Trade samples of Plumbago.

**Mr. A. J. R. DE SOYSA, Colombo.**—Large lump of Plumbago weighing nearly 5 cwt., or 250 kilos.

**Mr. J. W. CHARLES DE SOYSA, J.P., Colombo.**—Very fine show case of fifteen trade samples of Plumbago.

**Mr. A. J. FERNANDO, Colombo.**—(1) Trade samples of Plumbago; (2) Carving in Plumbago; (3) Large lump.

**Mr. H. BASTIAN FERNANDO.**—Trade samples of Plumbago.

**Mr. W. A. FERNANDO, Colombo.**—(1) Trade samples of Plumbago; (2) Specimens of Plumbago combined with iron pyrites and other mineral formations; (3) Carving illustrating the village story of the Crow and the Truant Boy.

**Messrs. U. D. S. GUNASEKARA & Co., Colombo.**—Trade samples of Plumbago.

(b) **Mica.**

Sometimes erroneously called Talc, a silicate of magnesia, is found in large quantities in the central districts, where it frequently shows on the surface and generally exists in conjunction with plumbago. It is not mined for in a systematic manner, but is collected by hand from pits dug where there are surface signs of a vein. There is a ready demand for it locally for decorative purposes in connection with the Kandyan art industries. Large plates are exported, principally from the Province of Uva, the quantity in 1895 (which showed a falling off on previous years) being 81 cwt. (4,000 kilos) valued at Rs. 8,648 or 13,840 francs. But, in view of the use of mica in electric works, the trade in mica should expand.

Its splendid insulating properties, combined with its ability to withstand the highest test of heat and to resist dampness, and the fact that it is infusible, tough, and non-combustible, and does not absorb oil or moisture, render it extremely valuable in the manufacture of electrical machinery, &c. It is practically the only material now used for commutator bars, for which it is eminently suitable because of its excellent insulating properties, its great durability, and its practically perfect cleavage, in consequence of which it can be procured of any desired thinness.

It is used frequently to separate the iron discs that go to make up the iron core of an armature : the completed core is again very generally insulated with this material, to keep the armature conductors electrically separated from the iron core; in fact, mica is generally used in the manufacture of all dynamo electric machines, alternators, transformers, &c., on account of its insulating properties, combined with the other advantages mentioned above.

It is also found of great use in the making of arc lamps and electrical instruments—*e.g.*, standard condensers, resistance frames, high tension fuses, &c. Ceylon mica has not yet been introduced into the trade : but samples have been tested from time to time, some of which were of good pure quality and suitable for electrical purposes.

There is a satisfactory market for good mica in Europe and America for electrical manufactures. For these purposes it should be pure and free from metallic substance, and should be placed in the market in fair-sized, even sheets with a ready cleavage.

<b>CEYLON GOVERNMENT.—</b>	<b>Mr. C. DE WINTON.—</b>	From Mica from District of Nuwara Eliya.	Nuwara Eliya : Trade samples.
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**(c) Ironstone, Limestone, Rock Crystal.**

Other minerals of interest include specimens of limestone from the Districts of Ratnapura and Kégalla ; some specimens of spinel-bearing limestone shown by Mr. A. J. Kellow, from a reef on his estate of Albion, near Nuwara Eliya, and a large block of rock crystal from the Kégalla District.

The collection of the famous gems and precious stones of Ceylon—far the finest ever brought together in one place—is dealt with under Class 95.

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**GROUP XII.—DECORATION AND FURNITURE.**

**Class 69.—Art Furniture.**

The exhibits under this section deserve special attention, both as specimens of the magnificent cabinet woods grown in Ceylon and as proofs of the ability of the Sinhalese as carvers and cabinet-makers. The richest and handsomest cabinet woods are calamander, tamarind, ebony, satinwood ; but there are numbers of others as beautiful but little known. To be noticed are :—

**CEYLON GOVERNMENT.**

1. The Gateway from the Commercial to the General Court. It is a fae-simile in ebony and cocoanut wood of a carved stone gateway found in a ruined palace of the Kandyan Kings at Yápahu.

2. The large show case in which the Teas are exhibited : a fine specimen of carved flowered satinwood.

3. A calamander cabinet from Galle, remarkable for the fine planks of the wood in the panels. [For sale.]

4. Carved ebony flower stand. [For sale.]

5. A suite of furniture carved in ebony and inlaid with porcupine quill work. [For sale.]

**MR. J. W. C. DE SOYSA, J.P.**

6, 7. Two superb carved cabinets in calamander wood. (Mr. de Soysa's collection of Art Furniture is unrivalled in Ceylon.)

8. Three pairs of elephant tusks mounted on calamander and ebony stands.—One pair, measuring 6' 3" along the outside curve, form the longest tusks known in Ceylon.

**DON POROLIS GUNAWARDANA, Muhandiram.**

9. Carved cabinet in calamander wood, built specially for the Exhibition and exhibited by the maker. [For sale.]

**MR. W. E. DAVIDSON.**

10. Revolving bookease, calamander, a fine specimen of carving.

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**Class 72.—Pottery.**

**(a) Kandyan Painted Ware.**

**(b) Village Pottery, including the Grecoque.**

Two classes of pottery are made in Ceylon,—the ornamental industry of Kandy and the village products of the maritime districts.

(a) The painted pottery of Kandy is made for ornament only. The clay is of a special kind, called "kirimetiya," somewhat akin to China clay such as is used for sizing cotton goods. The pattern is carefully drawn in pencil. The paints used are of the commonest native sorts purchased in the bazaar. They are mixed with "kepitiya" resin (from the shrub *Croton luciferum*), and laid on with primitive brushes made of the awns of a common wayside grass (*Aristida adscensionis*). Two or three layers of paint are used in the best specimens, and the whole is varnished with the milky juice from the Jak fruit. The art is a modern development of the old tile-painting and temple decoration. The designs are conventional both on the tiles and bowls, the cobra, elephant, and sacred goose ("hansa") being frequently depicted. The colouring is purely Oriental, the bold scroll designs in yellow on black, red, or blue background being very effective in an Oriental style.

There is a large and varied assortment exhibited by the Government of Ceylon, the most part having been purchased from the Kandyan Art Association of Kandy, a voluntary society which fosters this and similar artistic industries which have long existed among the Kandyan craftsmen.

(b) The common village pottery used by the natives is made in the maritime provinces, especially in the neighbourhoods of Colombo (Kaduwella and Hanwella) and Mátara (Dondra Head). This pottery is extremely porous, and has the advantage of thoroughly cooling its contents. It is rarely much ornamented. Beside the useful articles made in very large quantities, such as chatties (bowls used by the natives for cooking and for carrying water), flower pots, &c., a considerable amount of grotesque pottery is manufactured. That from Kaduwella and Hanwella takes the form chiefly of birds and animals, while those from Mátara are exhibits of comic human figures, grotesque, but without artistic merit.



SINHALESE GIRL WITH CHATTY.

**GROUP XIII.—TEXTILES.****Class 84.—Lace.**

The lace industry in Ceylon dates back to the times of the Portuguese, who introduced the art among the Sinhalese converts in the neighbourhood of Galle and Colombo. There is no great originality in the Ceylon work, the patterns being mostly borrowed from the European laces; the work, although unfortunately often done in poor material, is cheap and durable: of late years, the industry having been largely superintended by the various Church Missions, the materials



PILLOW LACE MAKING.

and designs employed have been much improved. The following exhibits will repay attention, and stress is laid on the fact of the superior durability of the pillow-made lace over machine-made lace.

**CEYLON GOVERNMENT.**

Samples purchased from—

The C. M. S. Mission, Buona Vista, Galle.

The C. M. S. Mission, Dodanduwa.

The Convent of the Good Shepherd, Kotahena, Colombo.

The C. M. S. Mission, Kótté.

Mr. C. H. de Silva, of Magalla in Galle.

There is some rich embroidery in gold and silver bullion on the gala costumes of native races, referred to more particularly under Class 98 (Native Dresses).

**GROUP XIV.****Class 89.—Leather and Tanning Substances.**

The Tanning Industry of Ceylon is only of recent date, and is represented by less than a dozen tanneries, most of

them in the suburbs of Colombo. The art of tanning is still in that stage where raw materials are used as tanning agents. In such materials the Island is rich, and the following list includes the principal forest trees from which tanning substances are obtained :—

Tamarix gallica, Kiri T.	...	...	The galls.
Areca Catechu, Puwak S.	...	...	Kernels.
Cassia auriculata, Ránawára S.	...	...	Bark.
Pterocarpus Marsupium, Gammalu S.	...	...	Exudation.
Anogeissus latifolia, Dáwu S.	...	...	Leaves.
Bruguiera gymnorhiza, Kadol S.	...	...	Bark.
Rhizophora mucronata, do.	...	...	do.
Rhizophora Candelaria, do.	...	...	do.
Terminalia Chebula, Aralu S.	...	...	Fruit.
Terminalia belerica, Bulu S.	...	...	do.
Psunica Granatum, Pomegranate	...	...	Buds, rind, and root bark.
Careya arborea, Kahata S.	...	...	Bark.
Eugenia Jambolana, Mahadan S.	...	...	do.
Diospyros Embryopteris, Timbiri S.	...	...	Fruit.
Calotropis gigantea, Wará S.	...	...	Milk sap.
Avicennia officinalis, Kanná T.	...	...	Bark.
Phyllanthus Emblica, Nelli S.	...	...	Fruit.
Casuarina equisetifolia, Kasa S.	...	...	Bark.

The barks of *Rhizophora mucronata*, *R. Candelaria*, and *Bruguiera gymnorhiza* constitute mangrove bark, while the fruits of *Terminalia Chebula* and *T. belerica* are known as myrobalams. *Acacia decurrens*, the Australian "black wattle," is the only cultivated tan-producing tree, being grown in up-country estates along boundaries and to serve as wind-belts.

Mr. W. D. Carolis, whose exhibits are noted below, is the proprietor of the largest tannery in Colombo. He is a Sinhalese gentleman who has with commendable enterprise established a thriving business in leather which finds its way to both European and American markets.

Mr. W. D. CAROLIS.—Skins and leather from ox, buffalo, goat, sheep, deer, elk, calf, dog, iguana, snake, alligator, and leopard; and various tanning substances.

CEYLON GOVERNMENT.—Skins of elk, deer, monkey, cheetah (Leopard); and tanning barks.

Mr. A. J. KELLOW, Nuwara Eliya.—*Acacia decurrens* bark.

## GROUP XV.—VARIOUS INDUSTRIES.

### Class 94.—Goldsmith's and Silversmith's Work.

The exhibits under this section are both numerous and valuable, and in their variety include every kind of gold and silver work which exists among the Sinhalese, Tamil, and Moorish races in Ceylon. The most markedly Sinhalese work of all is that from the goldsmith caste in the mountain country, of which Kandy was the ancient capital, and which

includes the Districts of Ratnapura and Kégalla as well as the villages in the Kandy District proper. These goldsmiths are few in number, and are for the most part in good circumstances, having inherited endowments in fields and hill sides, bestowed as rewards upon their ancestors. They have not therefore any great inducement to work with regularity, and it is often hard to get orders executed at all. The Kandyan Art Association, however, an organization started in Kandy with a view to stimulating the workmen to greater industry, and to bring their work more generally before the public, has procured some very good specimens of their art, notably the fine collection of embossed and engraved silver boxes, salvers, &c., produced by the smiths of Kandy proper. From the adjoining District of Kégalla some very beautiful specimens of the work have been sent: a model in silver of the Diamond Jubilee ambalam (native resthouse) is finely finished, although the model gives but a faint idea of the beauty of the original building, which stands by the side of the mountain road in the town of Kégalla, set in its frame of arecanut palms. The salvers and dagoba from the same district should be noticed. The Ratnapura smiths send a quaint set of Sinhalese head ornaments.

The Sinhalese of the maritime districts have, owing to the long occupation of their country by the Portuguese, a race who mingled very freely with the people, adopted many of the customs of the Portuguese, notably in their dress and jewellery. The jewellers of Colombo and Galle have contributed many valuable exhibits, more spirited and varied in their design than the Kandyan work, though, as a rule, not so minute and delicate in finish.

The best specimens of their work are the large silver casket and the large salvers, and especially the gold-mounted and gemmed, exquisitely carved ivory casket, and the gold-mounted tortoise-shell box exhibited by Mr. D. F. de Silva.

#### CEYLON GOVERNMENT.

*From Ratnapura.*

- 2 chased silver penholders, Rs. 10.
- A set of Sinhalese head ornaments, 4 pieces, Rs. 35.
- 1 silver dagoba (karanduwa).
- 1 silver box (mullu heppuwa).
- 1 silver box (wata heppuwa).
- 1 silver betel tray (lat thattuwa).
- 1 silver chunam box (killota).

*From Kegalla.*

- Silver dagoba, pedestal under roof, Rs. 270.

Engraved and embossed silver cover for an ola book, representing a Kandyan procession.

Model in silver of Diamond Jubilee ambalam, Rs. 400.

Silver salver, Rs. 230.

Silver ambalam in form of inkstand (W. E. Davidson).

Case of nedun wood containing silver card case (loan).

Chunam box.

Betel pounder. ..

Arecanut cutter, betel box, and tobacco box (loan).

*From Kandy.*

A fine collection of silver boxes, salvers, letter elips, spoons, powder boxes, and bowls.

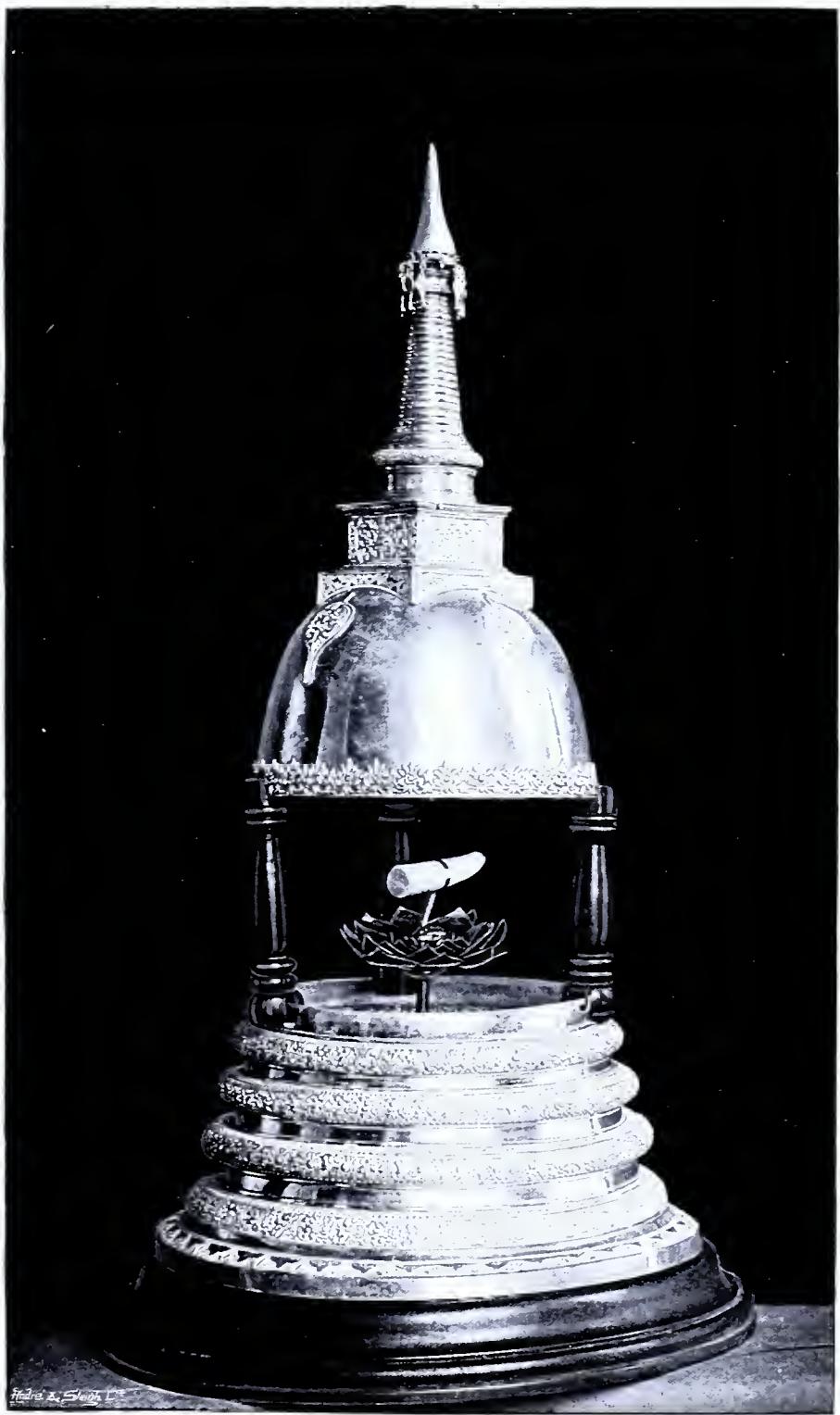


Photo by Mr. A. W. Andréé.

THE SACRED TOOTH RELIC.

Photo by Mr. A. W. Andréé.

RELIQUE DE LA DENT SACRÉE.



**CEYLON GOVT.—*contd.***  
*From Colombo.*

Silver cabinet, Rs. 140.  
 Large silver casket, Rs. 280.  
 Small silver casket, Rs. 170.  
 Silver cup, Rs. 70.  
 Silver goglet, Rs. 100.  
 2 large silver trays.  
 Trays, paper cutters, &c.

**Mr. D. F. DE SILVA, Colombo.**  
 A gold-mounted and gemmed ivory casket.  
 A gold-mounted tortoise-shell box.  
 A silver-mounted tortoise-shell blotting pad.

**DON THEODORIS & Co.,  
 Colombo.**

Large ivory elephant mounted in gold like the Maligawa Perahera elephant, with a casket on it.

Ebony elephant, 18 inches high, like the above, mounted in silver and ivory.

Tortoise-shell box mounted in gold.

Two tortoise-shell boxes mounted in silver.

Carved cocoanut mounted in silver, and standing on an elephant foot, for a liquor flask.

**Class 95.—Jewellery, Precious Stones,  
 and Lapidary Work.**

**Native Jewellery.**

In addition to the collection of Ceylon gems—the largest and most complete ever brought together—in charge of Mr. J. Hayward, there is a magnificent show of native jewellery (Tamil and Sinhalese) on view in the Ceylon Court. The cutting of the gems has been done by native lapidaries, who are generally Moormen (descendants of Arab traders who settled in the Island and intermarried with the Tamils). The fact that but few Sinhalese are lapidaries is a proof that gem-cutting was not practised in Ceylon in ancient times, the Sinhalese valuing the size and weight of the stones, the cutting being an innovation which came with the demand from Europe for brilliancy and shape. Even now the shaping of the gems as done in Ceylon is far inferior to the European work, and the visitor will notice that many fine stones are unfit to compare with the European cut gems, their brilliancy having been sacrificed to size.

The following is the primitive manner in which a native lapidary cuts his stones. The rough stone is first stripped of its useless parts by means of a tin saw which is wetted with "corundum" paste. The instrument used for cutting the stone thus prepared is a leaden disc mounted vertically on a wooden board; the stone is glued to a baton about four inches long by a paste made of beeswax and ground porcelain. The lapidary sets the instrument on the ground, and squatting before it, with one hand holds the baton at the required angle, while with the other rotating the disc on which "corundum" paste is rubbed from time to time. The stone when cut is polished. The apparatus for polishing consists of a copper disc fixed horizontally to a table, with a simple contrivance to rotate it. Near the edge of the disc is a vertical

rod, through which is passed a brass holder which holds the baton; the rod is capable by means of screws of being placed at any angle relatively to the (remaining part) disc. This contrivance is for the purpose of ensuring that the parts in any row are equally inclined to the axis of the stone. The paste, which is rubbed on the polishing stone, is a mixture of paddy husks and rice. A jeweller and engraver of local celebrity — Don Juan Wimalasurendra—a goldsmith by caste, distinguished by the Governor with the high titular rank



GEM CUTTER.

of Mudaliyar, assists Mr. J. Hayward in the charge of the gem exhibits, and is ready to explain the use of the gemming tools and the processes employed in cutting and polishing gems. Objects worthy of attention in the collection are :—

**IDDAMALGODA KUMARI-HAMI** (Ratnapura).

1. A gold necklace, set with 900-1,000 rubies and 18 emeralds, 36 pendants and clasp, of ancient Kandyan work, value £200.

2. A pair of gold bracelets, each set with over 200 rubies; ancient Kandyan work, value £150.

3. A pair of gold earrings, each set with 12 fine large rubies, 24 smaller rubies, and 12 brilliants; ancient Kandyan work, value £1,000.

4. A pair of gold earrings, each set with 17 rubies and 8 blue sapphires; Kandyan work, 40 years old, value £40.

5. An uncut ruby, weighing  $4\frac{1}{2}$  carats, said to be one of the finest ever found in Ceylon, value £2,000. The tinge of blue in this stone should disappear if burnt, and its value would be increased 50 per cent.

[The process of burning consists in enclosing the stone in a thick coating of lime (chunam) and then exposing it to strong heat. The operation is repeated till the blue tinge disappears.]

6. A large block of transparent colourless crystal, weighing 5 lb. Sinhalese *padiyan*. Value £50.

**Hon. Mr. W. ELLAWALA** (Kandyan Member of the Legislative Council) lends for exhibition a sapphire set in a brooch with small rubies round it in grape vine pattern; the stone with the work round it is about two inches in diameter.

**J. W. MADUANWALA, Ratnamahatmaya** (a distinguished Kandyan Chief) lends a sapphire which resembles an almond in shape; size 2 in. by  $1\frac{1}{2}$  in., weighing six and a half rupees, set in gold encircled by a grape vine.

Another distinctive class of native jewellery is that from the Northern Province, of which Jaffna is the chief town. This work is mainly gold filagree combined in a variety of ways with tortoise-shell, and frequently set with pearls.



Jandre & Sleigh L<sup>td</sup>

A KANDYAN LADY.

*Photo by the Colombo Apothecaries' Company.*

DAME KANDYENNE.



A large collection of gold and silver jewellery is shown, comprising brooches, necklaces, beads, earrings, anklets, and belts. Of special interest are :—

#### CEYLON GOVERNMENT.

##### *From Jaffna.*

Tortoise-shell and gold brooches of the vine and butterfly design.  
The gold star brooches.  
The rose leaf gold necklace.  
The three-string necklace.  
The Mani Addakai necklace.  
The Puram Addakai necklace.  
The Mohammedan nuptial tie.  
The Hindu nuptial tie.  
The Brahmin nuptial tie.  
The Sudras nuptial tie.  
The pair of Kuralach-kaddukam earrings (male).

The pair of Koppuvalli earrings.  
The pair of Kathumani ear ornaments.  
Moorish ladies' ornaments :—  
The Rakkodi (head ornaments).  
The Kandoik (head ornaments).  
The Kat-Thalamboo (head ornaments).  
Silver anklets (Pattacharm).  
Toe ornaments (Peeli Mailady).  
Bracelets.  
Belts.  
The gold inlaid iron salver.  
The sacred ash conch shell.

#### Gems and Gemming.

The most complete collection of gems of all kinds ever found in Ceylon is in charge of Mr. J. Hayward : it consists of over 50,000 specimens in all stages, both rough stones from the pit and cut and polished gems. The collection is valued at one million francs.

Digging for gems, like all gambling speculations, is but too attractive, and numbers of the rural population neglect the safer pursuits of agriculture for the speculative profits of the gem pits. The gems are found in a layer of gravel called "illan," which consists of stones of all sizes, and occurs at varying depths in different localities embedded, as a rule, in a clay called "malawa." The illan is covered with sand, over which is a crust of varying hardness called "cathura," a mixture of clay and decomposed granite. The gravel occurs sometimes in continuous veins and sometimes in patches called "etadi" ('elephant's feet'). Large blocks of granite and quartz are sometimes found in the illan, under the hollows of which are usually found precious stones.

The season generally selected for gemming is from November to March, when the level of the water is low and the current not strong. In land gemming a place known to contain "illan" is chosen, where a pit is dug at least fifteen feet square, the tool used being a spade with a long handle called a mamoty; the rocks met with are removed by means of pickaxes and crowbars, or blasted if necessary. When the level of the water is reached the earth gets soft, and the work of digging is rendered more difficult owing to the influx of water, which is baled out by a kind of balance crane.

Above the cathura are often found trunks of trees and decayed vegetable matter, and on rare occasions tusks of elephants and the shells of the hard "kekuna" nut. The cathura is usually very hard, and has to be broken through with pickaxes and crowbars, when the sand which covers the illan is exposed. The sand is removed and the illan collected in the buckets, which are hoisted up. The biggest stones of any value are easily picked out, and the rest of the illan is transferred into wicker baskets made of soft bamboo and strong rattan. These are basin-shaped and slightly conical and from one and a half to two feet in diameter.

The gem washer stands up to his waist in an adjoining stream, and holding the basket in the water, with its edge but a few inches out, rotates it quickly, slightly tilting it on each side in the turn, so that the water flows in on one side and out at the other. The clay, sand, and lighter stones are thus washed out. From time to time the larger stones are taken up and examined. The washing is continued until only the heavier stones remain, which are called "nambusa." The basket is then taken ashore and stones of value picked out. When water is not within easy reach, a method similar to that used in Burmah is adopted for washing the illan. The apparatus consists of a wooden trough about fifteen feet long and four feet wide. It is divided into about six compartments by iron railings, each lower one being narrower than the one above it. This is placed on the ground, and water from a high-lying stream is let through by means of bamboos or hollowed kitul trunks. The flow of water carries away the clay and sand and leaves the stones in the different compartments according to their size.

River gemming varies but slightly from land gemming. The digging is much more difficult, as the operation is done in a current of water and the removal of the rocks, which are more frequent and cannot be blasted, is more troublesome. The illan, when exposed, is scooped out with mamoties (longer in the handle than those used on land) and put into baskets held between the feet. The filled baskets are handed over to the washers.

In both kinds of gemming, when there is doubt as to whether there is illan, the spot being sufficiently soft and without rocks, the sounding rod called "illan-kura," which is a long iron rod ten to fifteen feet long, pointed at one end and fixed to a handle at the other, is driven in. The sound of contact tells the experienced workman whether cathura or illan has been struck. If, even with the longest illan-kura, neither cathura nor illan is struck, digging is abandoned.

In land gemming, when it is found that the illan runs in any particular direction, tunnels are made in those directions large enough to enable a man to go through and dig it out.

Annexed is a description of the model of a gem pit which is exhibited.

*Model of a Ceylon Gem Pit.*

This is a model of a gem pit made to a scale of  $\frac{3}{4}$  in. to the foot. The pit is 60 ft. deep, and its internal dimensions are 10 ft. 6 in. by 7 ft. The roof is carried down to the ground on one side, and this faces South or South-West, and is so constructed in order to keep the South-West monsoon from driving in under the roof. The square hole in the roof is made to let the light down into the pit. The winch is a model of a kind usually used in gem or plumbago pits, and is worked by four coolies. The barrel standing to the left of the mouth of the pit is used for bailing out the water, and the baskets for raising earth and illan (gem gravel).

The tools employed in digging are mamoties, alavangees, and illan pickers, and copies of these will be seen placed about the model. The soils filling the glass cases were actually taken from an existing pit, and consist of top soil, different kinds of cabook (laterite) showing a vein of plumbago, and finally ending in illan at the bottom of the case.

When illan is reached a tunnel is constructed, as shown at the bottom of the model.

It is impossible to estimate the annual yield of precious stones in Ceylon. Some returns are attempted by the Government, but there is no doubt that through private sources four or five times the reputed values are each year sent to Europe.

The two principal districts for rubies and sapphires are Ratnapura and Rakwana, and with these gems in the same districts are often associated the much-esteemed stone, the catseye. There may be added also the star stone, amethyst, alexandrite, moonstone, aquamarine, chrysolite, chrysoberyl, garnet, topaz, tourmaline, spinels, &c.

The catseye is highly valued, and fine specimens have realized large sums; but it is affected by the caprice of fashion more than any other stone, not commanding general



KANDYAN CHIEF'S DAUGHTER.

admiration as do the sapphire and ruby ; the result is that in some years its price is increased by a demand which in others as suddenly falls. There are inferior kinds of stones resembling cat's eyes, such as the quartz catseye and the crocidolite, which is now stained to resemble the chrysoberyl ; but in no case can they compare with the real catseye, which is peculiar to Ceylon. Although found in several districts, the finest have been produced from the gem pits of Morawak Korale. A very fine specimen of this gem is exhibited, the property of a native Moorman, O. L. M. Macan Marikar, who values it at £3,000.

In the same district of Morawak Korale, and almost exclusively there, is found the beautiful gem called *alexandrite*. This was formerly known only from the Northern part of the Russian Empire, and took its name from the Imperial family, but the specimens are slightly different from those found in Ceylon. The characteristic of this gem when really fine is its rich vivid green hue by day (much darker than the emerald, and slightly bronzed), which by artificial light is completely changed to a deep red ; this is supposed to be due to its containing a little copper and oxide of lead. Like the catseyes, this gem occasionally commands a high price in the European markets, and is sometimes sought after by Americans ; but any activity in the output of alexandrites at once causes the price to fall very seriously ; it is therefore anything but a safe speculation.

*Star stones* are almost peculiar to Ceylon. They are frequently known under the name of asteria. They vary in colour, but are generally divided into the ruby or red star stone, and sapphire or blue star stone. By skilful cutting the natives produce a star of six rays, which by sunlight or artificial light is vividly shown : many fine specimens show the star in ordinary light, but if diffused the light decreases the star by reflection : a top light is the best to judge them by. Ordinary specimens are of little value, but a fine stone commands a high price.

*Moonstones* were credited to other countries in past ages besides Ceylon, and were known to the ancients, who associated the moonlike lustre with the phases of the moon. This stone is found in large numbers in several places, and is not of any considerable value ; indeed, the large quantities found prevent its commanding a high price. When well cut it reveals a silvery moonlight lustre more than a ray in the centre of the stone, shifting as it is moved. As it is a very beautiful stone, it is a pity the prejudice of the trade should prevent its introduction to the cheaper forms of jewellery, as it is in much better taste than many of the common gaudy

stones used for such ornaments, and could be supplied at less price.

Chrysoberyl, chrysolites, topazes, garnets, &c., are all found associated in the same soil as the more valuable gems, and have hundreds of varieties both in colour and general appearance. The more definite kinds of each of these are easily recognizable, but the numerous gradations of tints make some of these stones difficult to classify, so that dealers with limited knowledge often misapply the names. In many cases the only true test is by the different hardnesses and the specific gravities. Ordinary specimens of these stones are not valuable, but anything very fine commands a fancy price.

A number of fine *garnets* are to be seen hanging in folds round the golden shrine of the Tooth relic at the Daladá Máligáwa, Kandy, the sovereigns of Ceylon having held them in much esteem. Garnets of extremely small size, but of considerable brilliancy, may be seen thickly set in the face of the blocks of gneiss standing in the jungles of the Southern and Eastern Provinces, giving forth brilliant rays in the noonday sun ; these are, however, too small to have any value.

The *cinnamon stone* is commonly found in the Island and often of some size, but it is not much valued.

The very beautiful stone known as *zircon* is classified under many names, according to slight variations of colour, or the imagination of the dealer who introduces it to the market. Tested in the wheel of the lapidary, the zircon is very frequently designated jargoona and hyacinth. Its colour as usually recognized is of a bright red with a yellowish tint, showing in fine specimens a burning fire which the ancients were wont to credit with supernatural power. Many other qualities it was supposed to possess : amongst others, the power of composing the wearer to sleep and protecting him from unseen enemies.

Another kind of zircon bears a totally different appearance, being almost colourless, and this particular variety is frequently called jargoona by the native experts. It is a whitish crystal with a smoky hue, and has the appearance of an inferior diamond ; indeed it is sometimes dignified with the name of Ceylon or Mátara diamond. The true zircon with its rich fiery colour is very rare, and consequently very valuable. From its peculiarity in structure and influence under heat, it is specially treated in cutting and polishing by the lapidary, a copper plate being used with powdered rotten-stone. Unfortunately many inferior kinds are imperfectly finished, and hence the gems called zircon,

jargoons, and hyacinth do not stand very high in the commercial standard.

Two or three rare cases of crystallization are exhibited in this collection. First, a natural crystal of chrysoberyl, in the form of a star of six points, the sides being duplicated. There are instances of this form of crystal having been found before, but it is very rare. Also a common crystal in the natural state, bearing a somewhat grotesque and exaggerated resemblance to a human face. This was discovered in a gem pit of great reputation at Ratnapura, where certain very large and valuable gems were obtained.

A very rare *alexandrite catseye* also exhibited is worthy of notice. It is of a dark bottle-green colour, with the white line, and by artificial light has the ruby tint of the alexandrite.

Attention is also called to a collection of various coloured sapphires, including fifty different tints, which gives the best representation of Ceylon stones ever exhibited, and includes collections made during the last fifty years.

The collection is the most complete exhibition of Ceylon gems ever brought together. It includes specimens of the geological strata in which gems are found (prepared by Mr. ATTYGALA, the Shroff Mudaliyar of the Ratnapura Kachcheri, under the direction of Mr. L. W. BOOTH, C.C.S., the Government Agent of Sabaragamuwa); a model of a gem pit (prepared by Mr. E. LASSELL, lately the Engineer of the Ceylon Prospective Syndicate); collections of rough stones called *illan*, among which the gems are found, and uncut specimens of gems (contributed by IDDAMALGODA KUMARIHAMÍ, a Kandyan lady of high family; by M. A. MARIKAR, a Moorish gem miner, known as "The Gem Notary"; by A. L. MOHAMED BAAS, and others); and specimens of cut and polished gems, including Rubies, Sapphires, Jargoons, Spinel, Chrysoberyls, Tourmalines, Beryls, Hyacinths, Catseyes, Ruby and Sapphire Star-stones, Alexandrites, Zircons, Amethysts, Cinnamon Stones, Aquamarines, White Topaz and White Sapphires, the Yellow Occidental Topaz, Garnets, Moonstones, Kirinjee, and Crystals. The chief contributor to the collection is

Mr. J. HAYWARD (2, Argyll Street, Oxford Street, London, W.), who has made Ceylon gems a life-long study, and who, being in charge of this department, is glad to explain to visitors the merits of this collection.

Other valued contributors include the IDDAMALGODA KUMARIHAMÍ, whose loan collection includes an uncut ruby of 42½ carats and some beautiful sapphires and rubies mounted in Kandyan jewellery.

Hon. Mr. W. ELLAWALA (Kandyan Member of the Legislative Council): a sapphire cut *en cabochon*, 2 in. in diameter.

Mr. MADUWANWALA. Raté-mahatmayá (or Chief) of Kelonna Kóralé: a very large sapphire cut *en cabochon*.

O. L. M. MACAN MARIKAR (Grand Oriental Arcade, Colombo) contributes a famous catseye, an equally fine blue sapphire, and a gold box set with a variety of gems.

P. T. MEERA LEBBE MARIKAR (Grand Oriental Arcade) contributes some fine cut gems.

D. F. DE SILVA (of Chatham Street, Colombo) shows a fine selection mounted on a carved ivory casket.

## Class 97.—Works of Art in Wrought Metals.

### Brass Work and Inlaid Metals.

The brassware ordinarily made by the Natives of Ceylon is of the simplest description. The local demand for it among the Sinhalese is for utensils for domestic purposes, for cooking, and for vessels for carrying water. That the brass workers are capable, however, of beautiful work is shown by the exhibits from the Negombo, Kandy, and Galle Districts.

The industry in Negombo is considerable, and the articles are more highly finished than those produced elsewhere. The large cobra-di-capello and the figures of spiders, frogs, lizards, scorpions, and chameleons (Negombo), are good specimens of the work.

From Kandy a large collection of engraved and beaten brass work is exhibited in the form of salvers, cobras, figures of Buddha standing or sedent, candlesticks, goblets, and betel boxes. This work is remarkably effective, but requires less skill to perfect than does the plain polished work of the maritime districts. The visitor will notice specimens inlaid with copper and silver, which are specially attractive. The industry is fostered by the Kandyan Art Association.

The designs on the salvers depicting the Buddhist procession called the Perahera, although grotesque and out of drawing, are full of animation.

### CEYLON GOVERNMENT.

#### *From Negombo:*

Brass flower vases.  
Cobras, large and small.  
Pots on stands.  
Figures of spiders, frogs, lizards, scorpions, and chameleons.

#### *From Matale:*

Heppu and plates.

#### *From Kandy:*

Images of Buddha, figures of cobras, flower pots, bowls, dagobas, spear heads, candlesticks, snake charmers, goblets, betel boxes, and salvers : exhibits in brass, and also in brass inlaid with copper and silver.

## Class 98.—Fancy Articles.

### (a) Wood Carving and Cabinet Work.

*Carrings in Ebony and other Woods.*—The low-country Sinhalese, especially of certain sea-borde villages round Colombo and Galle, are excellent carpenters and cabinet-makers, and many of them are capable of turning out

first-rate work. The exhibits in furniture, especially the calamander and ebony cabinets, are sufficient illustration of this; but as these are catalogued under a separate section (Class 69. Art Furniture), smaller articles only, not articles of furniture, are enumerated below. Among these special attention should be devoted to the carved calamander and ebony boxes and the ebony writing cabinet. To the antiquarian and collector of curios the quaint old Dutch Bible boxes will be of interest.

#### CEYLON GOVERNMENT.

Carved calamander boxes from Colombo and Galle.

Carved ebony jewellery case from Galle.

Bible cases in various woods.

Carved ebony writing cabinet inlaid with stags' horn.

Two carved wooden Kandyan posts (loan from Colombo Museum).

*Currings in Cocoanut Shell.*—This delicate and beautiful work is produced by a few carvers on the coast from Colombo to Galle, mainly at Kalutara. The workers have many difficulties to contend with, as the cocoanut shell cannot be bent or altered in shape, and is at the same time hard to carve.

#### CEYLON GOVERNMENT.

Carved cocoanut shells.

Two Galle boxes made of coco-de-mer mounted on ebony pedestal.

A set comprising carved cocoanut shell teapot, milk jug, sugar bowl, cup, saucer, spoon, and toast rack.

Mr. A. W. A. PLATE.

Coco-de-mer set in silver and mounted, carved by the exhibitor.

#### (b) Ivory Carving.

All the exhibits under this heading are carved from tusk ivory, with the exception of some stands under the ivory elephants, which are formed of tooth ivory. The carved casket in ivory exhibited by Mr. D. F. de Silva, the jeweller so well known to all Eastern travellers, is an exquisite specimen of the art.

#### CEYLON GOVERNMENT.

A pair large ivory elephants.

Ivory fan handles.

An ivory dagoba.

A large collection of ivory elephants of different sizes. [For sale.]

An ivory box.

NUGAWELA RATEMA-HATMAYA.—Two ivory handles for fans.

A pair carved ivory covers for an ola book, representing the twelve signs of the Zodiac.

Mr. D. F. DE SILVA, Chatham Street, Fort, Colombo.—Carved ivory casket mounted in gold and set with precious stones.

Ditto, representing nine Planets.

Ditto, representing a Buddhist Festival.

An ivory walking-stick.

(c) **Tortoise-shell Work.**

This industry is a very important one among the tradesmen of Colombo and Galle: the shell of the turtle (*Caretta imbricata*) is imported chiefly from the Straits and the Maldivian Islands, and is manufactured into a variety of useful and ornamental articles mainly in the villages round Galle. The principal dealers in tortoise-shell exhibit an excellent and extensive collection of their work. The yellow variety of tortoise-shell is obtained from the claws of the animal, the material being fused together, and is very highly prized among the comb-wearing Sinhalese, who pay a high price for the best qualities of combs.

**CEYLON GOVERNMENT.**

A large collection of this work is on view in a great variety of forms. To be noticed are the figures of tortoises forming boxes, the combs worn by Sinhalese Headmen, ola book covers, a tortoise-shell

sword, tortoise-shell boxes mounted in gold and silver, and small models of jinrickshaws and almirahs.

**DON THEODORIS & Co.—**  
A well-known jeweller of Chatham Street, Colombo, exhibits the best work of the kind.

(d) **Porcupine Quill Work.**

Some fine specimens of porcupine quill work are shown. This work is chiefly done in the Galle District. The exhibits are all for sale.

**CEYLON GOVERNMENT.**

A suite of furniture in ebony and quill work. [For sale.]

A porcupine quill box inlaid with ivory depicting historical scenes. [For sale.]

Two ebony and porcupine quill writing cabinets and various other articles of less value (property of H. Don Carolis & Co.).

(e) **Lacquer Work.**

The art of lacquering is carried on in the interior of Ceylon to a limited extent, and has remained stereotyped for many generations. The brilliantly-coloured lacquered spear shafts and sticks from Kandy, mostly contributed through the agencies of the Kandyan Art Association, have been utilized in decorating the walls of the Court. Similar lacquer work is exhibited in the Maldivian collection.

**CEYLON GOVERNMENT.**

*From Matalé (Kandyan District).*

Lacquered walking sticks; spear handles; large and small fan handles ("anatumiti"); large and small "anatu fans."

*From Jaffna.*  
Lacquered toys.

**Mr. W. E. DAVIDSON.**

*From Kegalla.*  
Fans ("awwatu") and spears used in processions.

## (f) Masks.

The collection of grotesque masks of all sizes and forms represent those usually worn by men known as "Devil Dancers" on the occasion of the Perahera festival, when they form a portion of the motley procession which once a year proceeds from the Daladá Máligáwa (the Temple of the Sacred Tooth of Buddha) through the principal streets of Kandy during the night of the full-moon in August. The procession of wild dancers on such an occasion is a proof of how intimately the public observances of the two religions, Buddhism and Hinduism, became blended under the rule of the sovereigns of Malabar descent. It must be noted, however, that no Buddhist priest ever takes part in

TAMIL GIRL, EASTERN PROVINCE.

this annual Perahera, which is not regarded by them as orthodox, though they will lend the relic to be carried in the motley procession. The devil-dancers are believed by the common people to be able to cure serious sickness by their dances, which are often continued throughout the night in the sick chamber, not infrequently resulting in the death of the patient.

Other masks are those worn in the native "comedies" performed in the villages. The masks are made in the neighbourhood of Bentota on the South-Western coast of the Island, of plaster moulded. The hideous patterns are doubtless very ancient, and are always strictly reproduced; for, like all art in the East, it tends to become stereotyped in character.

The collection is furnished partly by the Government Agent of the Southern Province and partly by Mr. G. A. Joseph, Secretary of the Colombo Museum. The masks are the property of the Ceylon Government and are for sale.

## CEYLON GOVERNMENT.

A collection of Devil Dancers' Masks from the Colombo District.

Miscellaneous collection of Masks from the Galle District.

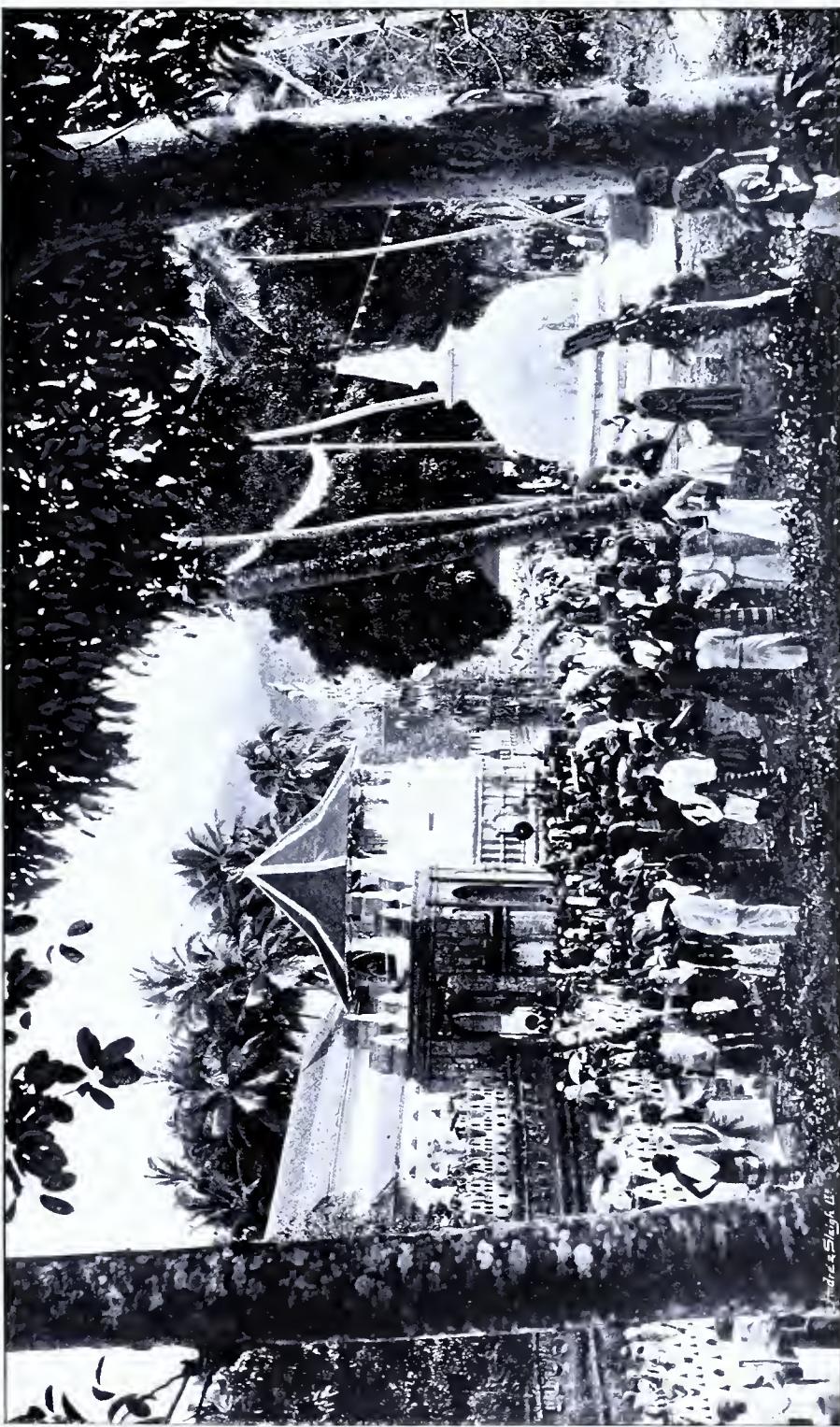
Large Devil Dancers' Masks.



TEMPLE OF THE SACRED TOOTH  
OF BUDDHA, KANDY.

*Photo by Mr. H. W. C. Gove.*

TEMPLE DE LA DENT DE BOUDDHA  
À KANDY.





**(g) Native Costumes and Ornaments.**

A handsome and valuable costume of a Kandyan Chief is shown. There are also exhibits of embroidered clothes, worn by the Chetty class in Colombo : these articles of dress are of considerable value, being hand-embroidered in gold and silver bullion.

**CEYLON GOVERNMENT.** [*For sale.*]

Hat worn by a Colombo Chetty.

Jackets worn by the Chetty ladies.

Chetty cloth.

Turban and sash worn by Chetties.

From Batticaloa are sent collections of native sarongs and combos and handkerchiefs. The artistic dyeing of these cloths is unequalled in the Island.



A CEYLON CHETTY.

**(h) Rattan and Basket Work.**

Ordinary rattan work is carried on to a considerable extent in the maritime districts, and in Colombo a great improvement has been shown of late years in the use of material and designs from the Chinese rattan work.

**A. E. SUMPS.**—Chairs and Tables, &c. [*For sale.*]

**JALDEEN & Co.**—Chairs and Tables, &c. [*For sale.*]

**J. A. WIRASINHA, Mudaliyar.**—Specimens of Rattan Work.

**BASKET WORK.**—This industry is carried on in Kalutara, a district adjoining Colombo, where baskets in nests of twelve, fitted into each other, each basket with its separate cover, "hembiliyas" (basket bags), cigar cases, and mats are made of fine dyed rushes and are sold at an extremely low price. The only defect in this work lies in the poor quality of the dyes used, the darkest shades being produced by steeping the rushes in black mud, a defect which should speedily be remedied by the introduction of good European dyes.

**CEYLON GOVERNMENT**  
(collected by Mrs. C. T. D. Vigors.  
The Residency, Kalutara).—A large collection of sets of baskets, "hembiliyas," cigar cases, "bulat malus"

(betel bags), and "thampachchis" (work baskets). [*For sale.*]

**J. A. WIRASINHA, Mudaliyar.**—A collection of similar articles. [*For sale.*]

(i) **Models.**

The ethnological models exhibited (enumerated under Class 9) include a group of Vedahs—man, woman, and child—admirably modelled from life by Mr. R. G. Andriesz. Of other life-size models there are good figures of a Buddhist Priest in his yellow robes, a Tamil Mudaliyar wearing his sword and other insignia of rank (his dress showing very evidently the influence of long European rule in modifying the native costume), a Kandyan Chief in full official dress (which is handsome if somewhat grotesque), a Chetty trader, and the Buddha in a sitting posture as well as standing, executed by Mr. A. E. L. Rost. The smaller models are enumerated below.

**CEYLON GOVERNMENT.**

*From Jaffna.*—Models of a Brahmin, Washerwoman, Chetty Trader; Fisher, with Catamaran, Nets, &c.; a Bridegroom and a Bride; the God Siva, his Bull, and Vehicle; a Moorman.

Other models are :—

A Tea Factory; illustrations of Paddy Cultivation; a Well and Well Sweep (Jaffna); a copper image of Chitragupta, Accountant of Yama, the God of Death; clay models of Fruit.

[For models of the Gem Industry see Class 95, for models of Boats see Class 53, and for a model of an Arrack Distillery see Class 61.]

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**GROUP XVI.—SOCIAL ECONOMY.****Class III.—Hygiene.****Ceylon Medicinal Plants and Sinhalese Medicines.**

In Sinhalese medical practice disease is held to be a disturbance in the equilibrium of the three humours—air, bile, and phlegm—which pervade the human system. These agents preside over certain vital functions, and while susceptible of being affected by temperature, diet, drugs, habits, &c., react on the organs whose functions they control. Every individual is supposed to be born with a predisposition to some one of these humours, or to a modification of one of them in combination with some proximate principle, corresponding with the nervous, bilious, phlegmatic, and sanguineous temperaments formerly recognized in the practice of Western medicine. The object of treatment is therefore to ascertain the mutual relation existing between these three humours in the patient, and to bring about an equilibrium between them. Crude as this theory may appear, it is essentially the system



BANYAN TREE.

Photo by W. L. H. Sheen & Co.

BANYAN.



which, borrowed from India by the Greeks and Arabians, entered more or less into all European systems of medicine till the close of the seventeenth century. Of the five or six hundred different causes of disease recognized in Sinhalese medicine, more than a fourth are ascribed to the abnormal conditions of the three humours, and the rest to vitiation of the seven proximate principles of the human body, viz., blood, flesh, fat, &c. Hence diseases are not classified by their symptoms so much as by their causes, and accidental symptoms are not only confounded with essential ones, but receive special treatment as distinct diseases. The treatment accordingly is more theoretical than empirical, every symptom being referred to some deranged humour, which alone receives attention, and has to be rectified according to the rules laid down by the recognized authorities. The true significance of any group of symptoms as indicating any definite morbid condition, or any particular stage of disease, is barely if at all realized by the native practitioner, their only value being to assist the memory to recall the particular Sanskrit stanza which details the orthodox treatment to be adopted under the special circumstances. No attempt is made to anticipate or arrest morbid changes or guide them to a healthy issue, except in so far as this is included in the general line of treatment, for the simple reason that a pathology based on actual observation of the dead body finds no place in native text-books of medicine, and no native practitioner, however experienced, would care to verify by a *post-mortem* examination the fanciful theories on which their system of medicine is founded. A very common practice with native practitioners is to allow a disease to progress for some time with a view to "mature" it, or "to bring it to a head," before any attempt is made to remove it. A quick recovery, whether under European or native treatment, is deprecated as likely to lead to a relapse, since sufficient time has not been allowed for the restoration of a permanent healthy equilibrium between the contending humours. They have great faith in critical days and in the influence of the different phases of the moon, each of which is supposed to preside over its own set of organs; so that purgatives, for instance, however much they may be needed in any given case, are never prescribed on the day (*kala*) on which the moon exercises its influence on the bowels, emetics on the day in which it presides over the stomach, &c. As they seldom make use of powerful or hurtful remedies, however, and are content in the majority of cases to relieve disease chiefly by acting on the emunctories by means of emetics, purgatives, and low diet, native practice is usually

not often mischievous even when it fails to effect a cure. In most cases the treatment only serves to change an acute disease into one of chronic character, while recovery from a simple affection is protracted, the patient being kept half starved on gruel and made to swallow huge quantities of infusions and decoctions of medicinal herbs, villainously compounded, the number of ingredients in each potion increasing in direct ratio with the continuance and severity of the disease. A mild form of fever, for instance, would be treated with a decoction of the "five minor roots,"—*Desmodium gangeticum*, *Uraria lagopodioides*, *Solanum Jacquinii*, *Solanum indicum*, and *Tribulus terrestris*, which are believed to cure fever due to deranged phlegm, catarrh, &c. A severer form would be ascribed perhaps to deranged air requiring the use of the "five major plants"—*Egle Marmelos*, *Calisanthes indica*, *Gmelina arborea*, *Stereospermum suaveolens*, and *Premna speciosa*. In remittent fever, &c., all ten may be prescribed together, and in typhoid fever, with head symptoms, the same with the addition of eight or ten other ingredients. When conducted by intelligent and skilful practitioners, native practice is not unlike the modern treatment of European medicine, viz., that of trusting to nature for efforts to restore health, while placing the patient under the most favourable conditions for recovery by means of suitable diet and regimen, medicinal treatment being directed chiefly to the relief of the more urgent symptoms. Unfortunately however the practice of native medicine has fallen into the hands of a class of men the majority of whom are ignorant and unskilful, and who do not possess even the little knowledge which may be gathered from the study of medical books in the vernacular.

It must be admitted however that the *Materia Medica* of the Sinhalese will compare favourably in many respects with the *Pharmacopœia* of the most enlightened countries of the West. Not only is every class of medicine well represented and supplied in profusion by the boundless prodigality of Nature in Eastern tropical climes, but some of the vegetable productions are valuable enough to deserve a place in the medicinal resources of Western science, while very many can easily and usefully replace the more expensive drugs of the same class which are imported into the Colony for use in the hospitals.

The complete list of medicinal plants and drugs is printed as a separate pamphlet, which can be obtained from the attendants in the Court or from the Executive Officer representing the Government of Ceylon (Mr. W. E. Davidson, C.C.S.), who will gladly furnish further details.

## COMMERCIAL COLLECTIONS.

### The Products of the Cocoanut Palm.

In Classes 39 and 41 have been noticed the copra, the desiccated nut, the oil, the yarn, and the poonac resulting from the manipulation of the husk and the dried kernel of the cocoanut, a fruit which has of late years become familiar to most dwellers in British towns. Under the present head will be found details connected with the many miscellaneous uses to which not only the fruit but the leaves, the midribs, the wood, and, in short, every portion of this truly national tree is put by the dwellers in the maritime districts of Ceylon. So universal is the adaption of this tree to the many wants of the tropical resident that it may be said that a Sinhalese possessed of but a few cocoanut palms need care for little else. How multifarious are its uses is truly described in the following passage :—

When the Sinhalese villager has felled one of these trees after it has ceased bearing (say in its seventieth year), with its trunk he builds his hut and his bullock stall, which he thatches with its leaves. His house bars are slips of the bark, by which he also suspends the small shelf which holds his stock of home-made utensils and vessels. He forms his little plot of chillies, tobacco, and fine grain with the leaf stalks. His infant is swung to sleep in a rude net of coir string made from the husk of the fruit ; his meal of rice and scraped cocoanut is boiled over a fire of cocoanut shells and husks, and is eaten off a dish formed of the plaited green leaves of the tree, with a spoon cut out of the nut-shell. When he goes a fishing by torchlight, his net is of cocoanut fibre, and the torch or chule is a bundle of dried cocoanut leaves and flower stalks ; his little canoe is a trunk of the cocoa palm tree, hollowed by his own hands ; he carries home his net and his string of fish on a yoke or pingo formed of a cocoanut stalk. When he is thirsty, he drinks the fresh juice of the young nut ; when he is hungry, he eats its soft kernel. If he have a mind to be merry, he sips a glass of arrack distilled from the fermented juice of the palm, and dances to the music of rude cocoanut castanets ; if he be weary, he quaffs "toddy," or the unfermented juice, and he flavours his curry with vinegar made from this toddy. Should he be sick, his body will be rubbed with cocoanut oil. He sweetens his coffee with jaggery or cocoanut sugar, and softens it with cocoanut milk ; it is sipped by the light of a lamp constructed from a cocoanut shell and fed by cocoanut oil. His doors, his windows, his shelves, his chairs, the water gutter under the eaves, all are made from the wood of this tree. His spoons, his forks, his basins, his mugs, his salt-cellars, his jars, his child's money box, are all constructed from the shell of the nut. Over his couch when born, and over his grave when buried, a branch of cocoanut blossoms is hung to charm away evil spirits.

Messrs. G. & W. LEECHMAN, of Colombo.

6 ordinary cocoanuts with husk.	12 Maldivian cocoanuts with husk.
10 king cocoanuts with husk.	8 sweet cocoanuts with husk.

8 medicinal king cocoanuts.  
 12 husked Maldive cocoanuts.  
 2 dwarf cocoanuts.  
 White Ceylon cocoanut oil.  
 Good merchantable Ceylon cocoanut oil.  
 Arrack.  
 Vinegar.  
 Jaggery, or crude sugar.  
 3 cocoanuts with husk, shell, and kernel (ripped and dried).  
 14 lb. cocoanut bristle fibre.  
 Cocoanut coir rug, with coloured border.  
 Cocoanut coir rug, plain.  
 Coir yarn, very fine.  
 Coir yarn, extra fine.  
 Coir yarn No. 1.  
 Coir yarn No. 2.  
 3 cakes of cocoanut poonac.  
 Ekel fish trap.  
 10 dried cocoanut kernels, or copra.  
 2 ornamental cocoanut shells.  
 11 lb. mattress fibre.  
 4 coils coir rope.  
 Coir bag for copra.  
 Coir bag for coals.  
 Twilled coir matting, plain.  
 Twilled coir matting, coloured.  
 Twilled coir matting.  
 4 cocoanut boards.  
 Cocoanut leaf broom.

Plaited cocoanut leaves, or cadjans, for thatch of native hut.  
 Cocoanut fibre brooms, with cocoanut handle, for cleaning roofs.  
 Cocoanut ekel brooms without handles.  
 Cocoannt ekel brooms with cocoanut handles.  
 Cocoanut flower stalk torches, or "chules."  
 Cocoanut leaf mats.  
 Cocoanut wood huskers.  
 Cocoanut flower stalks.  
 Cocoanut strainer made from the fibre of cocoanut stalk.  
 Cocoanut fibre brushes for white-washing.  
 Cocoanut fibre duster.  
 Cocoanut shell scoops with cocoanut handles.  
 Cocoanut shell ladles.  
 Cocoanut shell funnels.  
 Cocoanut fibre broom.  
 Half-combed cocoanut husks.  
 Brnshes for stencil plates.  
 Cocoanut shells.  
 Cocoanut coir bag for feeding horses.  
 Cocoanut coir scrubber for horses.  
 Cocoannt wood walking stick.  
 Cocoanut leaf bags.  
 Cocoanut rafters used for roofing huts.

## SCIENTIFIC COLLECTIONS.

### (1) Collection of Veddah Life. (*Aborigines.*)

The country inhabited by the Veddahs lies along the base of the lofty range of hills skirting the Badulla District. It is probable that they are the descendants of the early inhabitants of Ceylon found by Wijayo (543 B.C.) when he landed with his numerous followers on the North-East coast of the Island, unacquainted with agriculture save in its rudest forms. Refusing to hold intercourse with the invaders, or acknowledge the supremacy of the Indian dynasty of sovereigns, they retired sullenly to the arid jungles of the Bintenna, where none cared to follow them. There, amidst the congenial surroundings of a savage life, ill fed and badly housed, these hunters of the forests have undergone no change save that

"VEDDAHS."

*Photo by A. W. A. Platé & Co.*

GROUP OF VEDDAHS





of degeneration from climatic and other causes. With regard to the name of "Veddah," it corresponds so closely with that of the Indian "Wedars," or hunters, that there can be little doubt of its common origin.

A few of these people have been induced to undertake the cultivation of land, and dwell in huts prepared for them (the Village Veddahs); but as a rule they continue to make hollow trees and rocks their places of abode, feeding on the sun-dried flesh of the deer. Their numbers are now much reduced, and in not a few cases degraded low-caste Sinhalese villagers have been taken for them by travellers, a mistake which has caused some confusion.

The bows and arrows from the Bintenna plains of the low-country situated on the North-East of the lofty mountain zone are those used by the wild Veddahs of the forests. They, however, show but indifferent skill in the exercise of their wood-craft, and when called upon to bring down an animal in its flight, or a bird on the wing, but rarely succeed. Their usual method of securing game with the bow is to lie in ambush until the object in view is sufficiently near to make its capture an easy matter.

**Mr. R. G. ANDRIESZ.**

Model of Veddah Man.  
Model of Veddah Woman.  
Model of Veddah Boy.

**CEYLON GOVERNMENT**  
(Asst. Government Agent,  
Trincomalee).

Veddah Bows and Arrows.

## **(2) Articles from the Maldives Islands.**

The Maldives Islands are situated in the Indian Ocean, South-West of the Indian Peninsula, from which the nearest cluster (Ihavandifulu Atol) is about 350 miles distant, while the central one (Malé Atol) lies about 400 miles from the nearest point of Ceylon.

These islands are a dependency of the Government of Ceylon, which does not, however, interfere in any way with the internal administration; in fact, the political relations of the two are confined to a yearly embassy from the Maldives Sultan to the Government of Ceylon, the reception of which in Colombo is a very ceremonious function, the Ambassador presenting the Sultan's letter and presents to the Governor, who makes presents in return. Almost the only other occasion on which official communications pass between the two Governments is in the case of a shipwreck on the islands, when the Sultan advises the Governor of the mishap, and his

Excellency replies by thanking him for his kindness and humanity to the shipwrecked crew.

Although the Maldives have been more or less subject to the various Governments which have succeeded one another in Ceylon during the last two or three hundred years, comparatively little is as yet known about the inhabitants. The most complete work yet published on the subject is the Report, compiled in 1883, by Mr. H. C. P. Bell, of the Ceylon Civil Service, which treats at some length of the past history and present resources of the group.

The Maldivian Islands are of coral growth, and evidently belong to the same chain of submarine mountains on which the polyps have built up the Laccadives. The islands are grouped together in clusters called Atols, of which there are twenty, named (in order from North to South) Ihavandifulu, Tiladummati, Makunudu (Malcolm), Miladummaulu, North Malosmadulu, Fadifolu, South Malosmadulu, Goidu (Horsburgh), North Malé, Raslu (Ross), South Malé, Ari, Fulidu, North Nilandu, Mulaku, South Nilandu, Kolnnadulu, Haddummati, Huvadu (Suvadiva), and Addu. The Atol is formed of a number of islands of different sizes, joined by reefs, which enclose a lagoon of sea water; many of the islands are themselves merely a ring of coral rock enclosing a smaller lagoon. There are generally openings in different parts of the barrier-reef, which are in many cases wide and deep enough to allow large ships to enter. The surface of the islands is covered with sand mixed with decayed vegetable matter to a depth of three or four feet, under which is soft rock. The islands are covered with a thick jungle, above which tower the cocoanut trees; the vegetation is very luxuriant, but does not apparently differ from that found in Southern India and Ceylon. There are no streams on any of the islands; on most of them fresh water can be obtained from wells, but the quality differs very considerably; on some Atols it is very good, while on others it is so bad as to be dangerous.

The climate of the Maldives is similar to that of Ceylon as regards temperature; the heat is never very oppressive: the thermometer ranges from 80° to 90° in the day, and is generally about 80° at night. There is always a pleasant sea breeze, which modifies the sun's heat very much. But there is one source of disease which renders many of the islands uninhabitable during half the year: many of the lagoons being entirely landlocked, the confined sea water becomes stale and emits the most offensive odours during the dry season—that is, when the North-East monsoon is blowing. During this period (from December to May) it is quite

impossible to remain to leeward of such lagoons. During the prevalence of the South-West monsoon matters are better, as the sea breaks over the barrier-reef and partially renews the confined water. This fetid sea water, the bad drinking water obtained on many islands, and the carelessness of the inhabitants as regards their manner of living, are the principal causes of the large amount of sickness prevalent on the Maldives : the principal diseases are dysentery and fever. The mortality among children is much greater than with us ; it is said that only about twenty per cent. attain five years, though this is probably an exaggeration.

The Maldivians are a quiet hospitable people, though inclined to be suspicious and reserved with foreigners until they have become well acquainted with them ; once their confidence is gained, however, they are extremely hospitable. They are generally intelligent-looking, and have a much more pleasant expression than the inhabitants of many other Eastern countries : frank, open faces, without a trace of sullenness. They have a decidedly Arabian caste of countenance, and are generally of a dark brown complexion, though the people of Malé are much fairer.

The dress of the men is very simple, consisting generally of a pair of cotton drawers and a waistcloth ; some wear besides a white shirt. They generally wear a coloured handkerchief round the head, but the turban is not worn. The priests and men of high caste generally wear a long sort of dressing-gown, reaching nearly to the ankles. The women's dress is much more elaborate and becoming : the waistcloth is of a dark brown colour with a border of black and white stripes, over which is worn a loose-fitting coloured silk shirt edged at the neck with gold or silver embroidery : round the head they twist a silk handkerchief matching the shirt in colour.

Their food consists for the most part of rice, fish, and cocoanut ; the meals are eaten after the manner of Orientals, in silence, the women waiting first upon the men and afterwards taking their own meal separately.

The chief employments of the Maldivians are fishing, collecting cowries and tortoise-shell, gathering cocoanuts, cloth and mat weaving, turning and twisting cocoanut fibre into coir yarn.

The trade of the Maldives all passes through Malé, whither the inhabitants of the other islands bring their produce, which they exchange for rice and other necessaries. The exports consist of cocoanuts, coir yarn, dried and salted fish, cowries, and tortoise-shell : the imports are mostly articles of food. The coir yarn from the Maldives is of a bright golden

colour (due to the quality of the water of the lagoons in which the cocoanut husks are soaked) and commands a high price in the market.

The exhibits, obtained from the Colombo Museum, are the property of the Government of Ceylon.

Axe.	Green box.
Boat-bailers.	Holder for burning wood.
Bobbins for making laee.	Hook for turtle fishing.
Bottle-shaped box.	Jeweller's scale and box.
Box for sweetmeats.	Knife handles, red and black lacquer.
Candle stand.	Lacquered cover for tumbler.
Child's playing sticks.	Medicine plates.
Child's stool.	Nautilus spoons.
Cocoanut measure stamp.	Sample of coir rope.
Cocoanut squeezer.	Shark hook.
Cummerband twister.	Sling.
Dish cover.	Stopper for water pipe.
Doctor's pestle.	Turning machine.
Dumb bells, a pair.	Yellow jar.
Fishing nets.	Yellow jar for sweetmeats.
Flute.	
Fly whisk.	

### (3) Collection of Butterflies of Ceylon.

Exhibit prepared and shown by Mr. F. M. Mackwood.

The collection shown contains one hundred and seventy-five species of butterflies, out of a recorded number of about two hundred and twenty species from Ceylon. Considering the tropical position of the Island, its area, and diversified natural features, the butterflies of Ceylon compare badly with those of the Indian Continent both in regard to the number of species and the brilliancy of their colouration.

Of the recorded species, about 20 are peculiar to Ceylon, a few others are doubtfully distinct from related Indian forms, all the rest are common to India and Ceylon. The most interesting of the series shown is *Kallima philarcus*, locally known as the "leaf butterfly": the mimicry of a dead leaf shown by the contour and markings of the underside is closer than that of any other species of *Kallima* known to the writer.

Of the groups into which butterflies are divided, Ceylon is relatively well represented in the *Hesperiidae* family, moderately in the *Nymphalidae* and *Lycaenidae*, poorly in the *Papilionidae*, and scarcely at all in the *Lemoniidae*.

The names of species are as given by De Nicewill in his work, "The Butterflies of India, Ceylon, and Burmah."

#### (4) Collection of the Land Shells of Ceylon.

Although Ceylon has from time immemorial been renowned for the beauty and immense variety of its marine shells, the land mollusca have, up to the present time, received but a comparatively small share of attention. They are however of considerable scientific interest, and occupy an important position in the natural conditions of the Island.

While there is little difference in general character between the marine shells of the coasts of Ceylon and those found throughout the Indo-Pacific ocean—from Aden to Hongkong—the land shells are greatly isolated, a large number of species, and even several genera, being quite peculiar to the Island. Thus, the fauna possesses a striking individuality, and at the same time presents a most interesting problem in geographical distribution.

The marked affinity shown by certain groups of Ceylon land shells with forms occurring in the Seychelle Islands, the Mauritius, and Madagascar, is of much significance, and furnishes proof in support of the contention of modern zoologists and botanists that a more or less uninterrupted land connection must have existed between South India and the Malagasy region in the Mesozoic era. Land shells, owing to their limited powers of dispersal, afford specially valuable evidence upon problems of this nature; and it is possible that the ancestral types of the allied forms at present inhabiting these widely separated localities were originally developed in an ancient equatorial region now submerged.

This collection has been prepared by Mr. Oliver Collett, F.R.M.S., of Bin-oya, Watawala, Ceylon: it is for sale.

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#### Alphabetical List of Land Shells exhibited.

<i>Acavus Grevillei</i> ...	... Pfr.	<i>Bulimus insularis</i>	... Ehrbg.
— <i>haemastoma</i> ...	... Lin.	— <i>intermedius</i> ...	... Pfr.
— <i>melanotraga</i> ...	... Born.	— <i>mavortius</i> ...	... Rve.
— <i>Phoenix</i> ...	... Pfr.	— <i>proletarius</i> ...	... Pfr.
— <i>Poleii</i> ...	... Collett	— <i>punctatus</i> ...	... Ant.
— <i>superba</i> ...	... Pfr.	— <i>rufopictus</i> ...	... Bens.
— <i>Skinneri</i> ...	... Rve.	— <i>Simoni</i> ...	... Jouss.
— <i>Waltoni</i> ...	... Rve.	— <i>stalix</i> ...	... Bens.
<i>Aulopoma grande</i>	... Pfr.	— <i>trifasciatus</i> ...	... Brug.
— <i>helicinus</i> ...	... Chemn.	<i>Cataulus aureus</i> ...	... Pfr.
— <i>Hoffmeisteri</i> ...	... Trosch.	— <i>austenianus</i> ...	... Bens.
— <i>Itieri</i> ...	... Guerin	— <i>Blanfordi</i> ...	... Dohrn.
<i>Bulimus albizonatus</i>	... Rve.	— <i>Colletti</i> ...	... Sykes
— <i>ceylanicus</i> ...	... Pfr.	— <i>Cumingi</i> ...	... Pfr.
— <i>cingalensis</i> ...	... Pfr.	— <i>decorus</i> ...	... Bens.
— <i>fuscoventris</i> ...	... Bens.	— <i>duplicatus</i> ...	... Pfr.
— <i>gracilis</i> ...	... Hutton	— <i>Greeni</i> ...	... Sykes

<i>Cataulus homastomus</i>	... Pfr.	<i>Hemiplecta ceylanica</i>	... Pfr.
— Layardi	... Gray	— Chenui	... Pfr.
— Niethneri	... Nevill	— cyix	... Bens.
— Pyramidalatus	... Pfr.	— emiliana	... Pfr.
— Templemani	... Pfr.	— Gardneri	... Pfr.
— Thwaitesi	... Pfr.	— hyphasma	... Pfr.
<i>Clausilia ceylanica</i>	... Bens.	— isabellina	... Pfr.
<i>Corilla Bedomeae</i>	... Hanley	— rosamonda	... Bens.
— Charpentieri	... Pfr.	— semidecussata	... Pfr.
— Colletti	... Sykes	— taprobanensis	... Dohrn.
— erronea	... Albers	— tranquebarica	... Fab.
— Frye	... Gude	<i>Hygromea Radleyi</i>	... Jouss.
— Gudei	... Sykes	<i>Kaliella barrakporensis</i>	... Pfr.
— Humberti	... Brot.	— Colletti	... Sykes
— odontophora	... Bens.	— delectabilis	... Sykes
— Rivolii	... Desh.	— salicensis	... G. Austen
<i>Cyathopoma artatum</i>	... Sykes	<i>Lagochilus ocellans</i>	... Sykes
— Colletti	... Sykes	<i>Leptopoma conulus</i>	... Pfr.
— conoideum	... Sykes	— flammeum	... Pfr.
— innocens	... Sykes	— halophilum	... Bens.
— leptomita	... Sykes	— orophilum	... Bens.
— Mariae	... Jouss.	— semiclausum	... Pfr.
— turbinatum	... Sykes	<i>Macrochlamys carneola</i>	... Bens.
<i>Cyclophorus annulatus</i>	... Trosch.	— marcida	... Bens.
— Bairdi	... Pfr.	— partita	... Pfr.
— binoye	... Sykes	— politissima	... Pfr.
— Brounae	... Sykes	— regulata	... Bens.
— caducus	... Bens.	— subconoidea	... Pfr.
— ceylanicus	... Pfr.	— vilipensa	... Bens.
— involvulus	... Müll.	— woodiana	... Pfr.
— Layardi	... H. Adams	<i>Micranlux cokoconus</i>	... Bens.
— menkeanus	... Phil.	<i>Microcystis circumsculpta</i>	... Sykes
— parma	... Bens.	— perfucata	... Bens.
— parapsis	... Bens.	— suavis	... Jouss.
— subplicatus	... Beddome	— Thwaitesi	... Pfr.
— Thwaitesi	... Pfr.	— umbrina	... Pfr.
— vescus	... Sykes	<i>Nigritella concavo spirata</i>	... Pfr.
<i>Diplommatina ceylanica</i>	... Beddome	— galerus	... Bens.
— catathymia	... Sykes	— phidias	... Pfr.
— Prestomi	... Sykes	<i>Philalanka secessa</i>	... G. Austen
<i>Ennea bicolor</i>	... Hutton	<i>Polita notabilis</i>	... Sykes
<i>Euplecta Colletti</i>	... Sykes	<i>Pterocyclus cingalensis</i>	... Bens.
— Layardi	... Pfr.	— Cumungi	... Pfr.
— praeminens	... Sykes	<i>Pupa muscerda</i>	... Bens.
— Prestomi	... G. Austen	<i>Sitala aperiens</i>	... Sykes
— scobinoides	... Sykes	— pyramidalis	... Sykes
— sinhila	... G. Austen	<i>Streptaxis cingalensis</i>	... Bens.
<i>Eurystoma vittata</i>	... Müll.	— gracilis	... Collett
<i>Fruticicola similaris</i>	... Féret.	— Layardianus	... Bens.
<i>Glossula capillacea</i>	... Pfr.	<i>Syksia bieiliata</i>	... Pfr.
— ceylanica	... Pfr.	— clathratula	... Pfr.
— Deshayesi	... Pfr.	— caliginosa	... Sykes
— Collette	... Sykes	<i>Thalassia convexiuscula</i>	... Pfr.
— inornata	... Pfr.	<i>Trachia fallaciosa</i>	... Féret.
— Parabilis	... Bens.	<i>Thysanota eumita</i>	... Sykes
<i>Helicarion irradians</i>	... Pfr.	— hispida	... Sykes
— membranacea	... Bens.	<i>Xesta ganoma</i>	... Pfr.
<i>Hemiplecta bistrialis</i>	... Beck	— Julianae	... Gray
— ceraria	... Bens.		